Fall 12-2011

Shady Grove Site (22QU525) Quitman County, Mississippi: Analysis of Demographics and Mortuary Practices

Stacy Ann Scott
University of Southern Mississippi

The University of Southern Mississippi

SHADY GROVE SITE (22QU525) QUITMAN COUNTY, MISSISSIPPI: ANALYSIS OF DEMOGRAPHICS AND MORTUARY PRACTICES

by

Stacy Ann Scott

A Thesis
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts

Approved:

__Marie Danforth_____
Director

__H. Edwin Jackson_____

__Jeffrey Kaufmann_____

__Susan A. Siltanen_____
Dean of the Graduate School

December 2011

ABSTRACT

SHADY GROVE SITE (22QU525) QUITMAN COUNTY, MISSISSIPPI:

ANALYSIS OF DEMOGRAPHICS AND MORTUARY PRACTICES

by Stacy Ann Scott

December 2011

The Mississippian Period (A.D. 1000-1500) is distinguished by reliance on stable agriculture, sedentary ranked populations, and production of prestige goods. Sociopolitical structure was based on kinship, wealth, and power, and can be revealed through the local mortuary programs. This thesis explores the mortuary practices observed at an ossuary at Shady Grove (22QU525), a small mounded center in Quitman County dating to the Early Mississippian Period, based on demographics, burial mode, cemetery location, and associated grave goods.

The Burial 43 ossuary, excavated in 2010 contained stacked bundle burials of at least 78 individuals. All age groups and both sexes were present. There were 22 artifacts recovered, including 12 shell tempered vessels and a copper ornament. There were both collective offerings to the entire group and several artifacts interred with two individuals, which may indicate they were persons of higher status. It is unclear if the ossuary contains a single kin group or a sample of the entire population, which would indicate that everyone was allotted equal access to both locally produced and trade items. The observed difference in the burial method of stacked burials and its location under Mound B shows the variability of mortuary practices during this time period in the region. The information gained from this study will help in the understanding of the sociopolitical organization of smaller chiefdoms in the Mississippi Delta and Lower Mississippi Valley.

DEDICATION

This work is dedicated to the memory of my grandmother, Dorothy Caroline Scott. Her dream was to become an archaeologist and she instilled in me a passion for learning about past cultures. Without her guidance and support I would have never succeeded in my endeavor of becoming an archaeologist.

ACKNOWLEDGMENTS

I would like to recognize the members of my thesis committee, Dr. Marie Danforth, Dr. Ed Jackson, and Dr. Jeff Kaufmann for their guidance, patience, and belief in me. I would especially like to thank Dr. Danforth with her assistance in all phases of the work with the Shady Grove site and for her continued support and motivation. I would also like to thank John Connaway and the Mississippi Department of Archives and History for their assistance with making this project a reality. Also, this project would not have been possible if not for the field volunteers from the University of Southern Mississippi, the University of Mississippi, Mississippi State University, and Auburn University or without the laboratory help of the undergraduate and graduate students at the University of Southern Mississippi. I would also like to thank Michelle Hammond and Denise DeSadier with their help with the photography and Rocco de Gregory for his assistance during the excavation process. Lastly, I would also like to thank my husband for his help during the field excavation, laboratory work, and for the moral support when I needed it most.

TABLE OF CONTENTS

LIST OF TABLES

Table

LIST OF ILLUSTRATIONS

Figure

CHAPTER I

INTRODUCTION

The goal of archaeology is to understand past cultures; however, in areas where cultivation and long term collecting have significantly destroyed the archaeological record, at times only cemeteries exist to help in the reconstruction of prehistoric life ways. Through mortuary analysis of the demographics and associated grave goods within a cemetery, an approximate time period as well as the type of political organization present at the site can often be determined. The Mississippian Period (A.D. 1000-1500) in particular is distinguished by increased reliance on stable agriculture, sedentary ranked populations, and the production of prestige goods. Sociopolitical differentiation was measured within and between groups based on kinship, wealth, and power. Much of this differentiation is based on social exchange both within the community and with outside communities. Feasting, use of religion and religious iconography, and the development of new technologies that would benefit the community were all ways in which the ruling class maintained power, and their status can be reflected in mortuary practices (Earle 1987).

Since cultural practices during the Mississippian Period in the Mississippi Delta are not well understood, closer examinations of mound sites in the region are necessary to elucidate life ways. The Shady Grove Site (22QU525), which is located near Marks, Mississippi, is one such mound site that can help in our understanding sociopolitical structure during this time period. In this thesis, artifact type and distribution and the spatial analysis of burials are used to investigate the represented segment of society interred in the two ossuaries by using the methodology for mortuary analysis from

Goodenough (1965), Binford (1971), Saxe (1970), and O'Shea (1984). Findings were compared to results found at other sites in the Lower Mississippi Valley and more specifically those in the Mississippi Delta to determine how they might reflect the sociopolitical practices of the Shady Grove Site and how this organization fits in with what is observed at the other Mississippian sites.

The Mississippian Period

In the southeastern United States during the Mississippian Period, ranked societies or chiefdoms began emerging, showing a cultural development far beyond anything previously seen. Mississippian societies exhibit sedentary communities with a high reliance on domesticated plants such as maize, earthen platform mounds with plazas, large exchange networks, hierarchical societies, and shared iconic symbolism (Blitz 1993:85-86). Steponaitis (1986) has organized these societies into a two-tier classification system of simple and complex. Simple chiefdoms have one level of authority, whereas the ranking of a complex society has two to three levels, whereby local chiefs would report to a regional or paramount chieftain who received tribute from these subordinate chiefs located in scattered communities (Blitz 1993:89). "Discussions about complexity now tend to be phrased in terms of the political economy, and political economy is commonly tied to the issue of power" (Cobb 2003:65). Power is believed to have originated from the size of a kin group's food surplus as a means to gain or reinforce alliances and to promote their status through competitive and communal feasting that served to bind together small-scale societies (Blitz 1993:90). These types of displays of power through *specialization* brought with them social advantages that elevated certain kin groups to a higher status over other kin groups (Blitz 1993:91).

Chiefdom political structure can be reflected in many ways in archaeological settings. For instance, the delineation of space created during site construction with the construction of mounds around plazas reinforced the segregation of elites from non-elites (Cobb 2003). A second way was the production of prestige goods or specialized items, which displayed the organization of labor that was present in more complex Mississippian chiefdoms and was used as symbols to express rank. Food was a basic source of disposable wealth which is the reasoning behind the rise of Mississippian chiefdoms coinciding with intensive maize agriculture. And thirdly, elites often had rare or religious items frequently obtained through trade that were symbolic of their wealth and power (Muller 1984).

Delineation of space as a part of site structure is also displayed by the location of cemeteries both within and separate from residential areas. More complex societies often had a larger number of inhabitants, and therefore these societies had the manpower to allot more time and resources for religious and mortuary rituals. Several different burial methods were utilized during the Mississippian Period from extended to the more labor intensive bundling of remains (Sullivan and Mainfort 2010:18-19, 108).

In addition, elite burials were often accompanied by prestige goods (Chapman and Randsborg 1981:7). Prestige goods, often of exotic materials, can be obtained through trade routes or manufactured locally by specialists, which displays the organization of labor that was present in more complex Mississippian societies (Muller 1984). Peebles (1971:69) argued that within this ranking system supralocal symbols, those utilized over a wide area, and local symbols, those only recognized in one society, helped to define power through trade and trade items.

These dimensions of a mortuary program will be analyzed at an ossuary from the Shady Grove Site in Quitman County, Mississippi that dates to the Early Mississippian Period. Relatively little is known about the site since only a few excavations have taken place. The best evidence for the sociopolitical organization present at Shady Grove comes from the mortuary data. Therefore, an evaluation of the Burial 43 ossuary should help us better understand not only the site structure present at Shady Grove, but also the interaction of mortuary practices and sociopolitical organization of chiefdoms in the Mississippi Delta.

CHAPTER II

UNDERSTANDING MORTUARY RITUAL

Because mortuary ritual represents directly the conscious behavior of people rather than the incidental deposition of artifacts often found in the archaeological record, it provides important evidence in the reconstruction of social organization of past societies (O'Shea 1984:24). However, Carr (1995:3) feels that "philosophical-religious" beliefs should also be considered when studying burial practices and that observed behaviors are reflective of the living members of society. Therefore, the method of interment and the treatment of the deceased show directly the social relationship between the dead and the living. In addition to viewing the religious rituals within a mortuary context, the artifacts associated with the burials help us to understand what artifacts each group within the ranked society had access to.

Saxe (1970) viewed funerary practices as a display of a person's role within the society, and this theory became known as the representationist perspective (Sullivan and Mainfort 2010:3). Saxe (1970) proposed using a set of eight hypotheses for the componential analysis of depositional variability among cultures. Using his framework of the differential treatment in mortuary rituals observed, it is possible to infer the individual's position within society and the structural organization of the society. Unfortunately, several of Saxe's own hypotheses have proven to be untestable. The biggest problem with Saxe and Binford's work, however, as Brown (1971) argues, is that adapting these ethnographically observed phenomena to what is observed in the archaeological record is difficult. However, one of his hypotheses widely discussed among archaeologists concerns the meaning of spatial distribution observed in burial

practices (O'Shea 1984:10-13). Saxe (1970) believed that distribution of burials showed a connection to lineage and a society or families within a society holding certain prominent areas for the burial of their dead, and this alone explained the patterns observed in the archaeological record (O'Shea 1984:10-13).

In using the frameworks proposed by Goodenough (1965), Binford (1971), and Saxe (1970) for studying mortuary practices, John O'Shea (1984:32-39) argued that regularities or expected common practices in mortuary ritual must first be identified. He derived four principles or commonalities which exist in all cultures and at practically all times. Firstly, all societies must deal with death at some point and thus will develop a regular method of disposal (O'Shea 1984:32-39). Differences in treatment of the dead may be due to the presence of non-clan members or victims of warfare. Therefore, the interment method for one individual will be the same as for other individuals within the same social and chronological timeframe, unless something like a mass disaster occurred. Secondly, the demographics of a mortuary sample should be reflective of the living population (O'Shea 1984:32-39). However, this principle assumes that the fertility, mortality, and growth rates are known for the living population. Also, in order for this hypothesis to be valid there must be preservation of infants who can be more easily lost during post-depositional processes. All of these factors, along with cultural differential treatment of the deceased based on age or sex and short term use of a cemetery, can lead to a distortion of the mortuary population and thus, a biased sample. Thirdly, the mortuary population will not only reflect the deceased individual's role within the society but is representative of the living population. All archaeological artifacts interred within the burial context are also representative of both the individual and the society (O'Shea

1984:32-39). Lastly, O'Shea's fourth principle states that everything found within the burial context will be contemporary with the living society. However, when dealing with charnel houses, this fourth principle cannot be easily validated because it is the cumulative disposal of the dead and also could chronologically span different periods of time.

Once the constants or the common themes between burials at a single site have been defined, then the types of variation within each mortuary population between sites can be examined. Observed differences will include the following: demographics of the cemetery, the disposal type, the facility used (e.g. tomb, mound, non-mound), inclusive funerary items, cemetery location, and environmental conditions. The reasons for variability of funerary practices observed within a single site have been widely discussed and have been explained in several ways (O'Shea 1984:39-44). It may have been that there were differing practices during separate time periods, which variably reflects both religious beliefs and social behaviors. For example, bundle burials during the Mississippian Period can be attributed to a better structured and more hierarchical society that can afford to allot more time to mortuary ritual (Sullivan and Mainfort 2010:18). Another explanation may be that their religion required two funerals to ensure that the deceased properly cross over to the afterlife (Pearson 2001:22). The combination of different people from different groups living together in the same area/community can also explain the differences observed within a single site (Ucko 1969). In order to determine the range of variability, Goldstein (1976) has argued that smaller and more thoroughly documented sites should be used as the foundation for our understanding of

mortuary practices within a region because they provide a more accurate account of the living population than does a larger less well-excavated site.

For the study of mortuary ritual, Binford (1971) also proposes some important dimensions to consider within the context of spatial components. Firstly, the disposition of the burial must be examined, including the degree of articulation, the number of individuals, and any mutilations or modifications. Secondly, an observation of how the body was interred (single or multiple burials) must be made and should include the location of the cemetery; the location may be within the village, on the periphery, under a house floor, or within the contexts of a mound. Then an examination of the position of the bones and an analysis of associated funerary objects should be made. Lastly, it is important to document the demographics of the cemetery (age and sex), and also indications of disease or genetic relationships may be included (Binford 1971).

The type of treatment of the corpse, as well as the type of grave in which it is placed is an important part of mortuary ritual. The disposition of burials often varies both within a single site and between different sites, and also during different time periods. Burials may be extended, flexed, or bundled and occur as individual or multiple (such as an ossuary) burials. Secondary burials are the ones of most interest in this study as well as interment of bundles in individual or mass graves. In the Mississippi Delta, the bundling of remains is part of a ritual in which the body is placed on a rack and allowed to decompose for period of time. Then the bones are stored in a charnel house until a ceremony is performed to inter all individuals into an ossuary or individual graves (Swanton 1931:243-258). This practice was one of many widely used during the Mississippian Period; however, why the cultural trend shifted from primary to secondary

burials is unknown. One argument is that more complex chiefdoms had more time and power to allot to more prestigious ceremonies (Cobb 2003), but there are other simpler explanations. Based on an ethnographic study from the Borneo, one is that a secondary funeral was necessary to ensure the dead moved on to the afterlife; this practice also protected the living by preventing resurrection (Pearson 2001:22). Burials that are secondary in nature and that are still partially articulated show that they were still decomposing at the time they were interred and reflect a hurried ceremony (Swanton 1931:243-258). This reflects a particular occurrence, many people dying at once or a set ceremonial date which affected the living society. Also, cut marks indicative of disarticulation may be representative of defleshing by a bone picker or some other ceremonial practice or even signs of cannibalism (Sullivan and Mainfort 2010:94-96).

The inclusion of funerary objects is also a common practice observed with elite burials. The intentional deposition of funerary objects helps archaeologists to understand the chronology of the event, and also the cultural and political emphasis placed on burial practices. The importance of grave goods may be that they are symbolic of the items needed for the journey to the afterlife, that they prevent the dead from staying in the realm of the living, that they are representative of a person's position within the society, and/or that they are a way of acknowledging the person's existence by giving the individual a proper send off to the after-life (Pearson 2001:22). Whatever the case may be, there is wide variability among different cultures in grave goods and their reason for inclusion.

During the Woodland and into the Mississippian Period in the Southeast, there are varying types of interment that varied from location to location based on cultural and

social beliefs (O'Shea 1984:39-44). In the Mississippian Period, charnel house processing of secondary burials and interring these bundle burials into ossuaries are examples of the time and energy that could be afforded in more sedentary and socially stratified groups (Sullivan and Mainfort 2010:18-19,108). Milner (1984) notes that in the American Bottoms during the Mississippian Period there was a shift of location of non-elite cemeteries from "bluff-top mounds" to floodplains. A similar pattern was also observed by Goldstein (1980) in the Lower Illinois Valley with non-elite burials located not only in the floodplains but also along the periphery of residential areas (Beck 2003). The location of burials, as Saxe (1970) and Buikstra (1976) have pointed out, may also be strongly tied to lineage patterns and land holdings of certain kin groups for the interment of their deceased.

An example of lineage patterning and burial practices can be seen at Moundville in the Black Warrior Valley of Alabama. During the Moundville Phase II, site function shifted from residential to ceremonial as it became a necropolis (Knight 1990). It is believed that the organization of burials may coincide with the organization of site structure. The highest ranking clans would have positions on the north-central axis while subclans would hold positions arranged in descending patterns both clockwise and counterclockwise from the position of the highest clans (Knight 1998:54). Knight (1990) has proposed that the organization at Moundville with the arrangement of mound pairs around the plaza is representative of subclans' holdings.

During the examination of the burials at Moundville, Peebles (1971, 1979, 1987a, 1987b) noted that if Moundville were a ranked society, it should have two social segments comprised of a high-ranking group of ascribed or inherited status and a second

subordinate group based on achieved status. Peebles examined over 2,000 burials and their associated grave items into a hierarchy based on burial location (mound, cemeteries near mounds, and village burials). The subordinate groups were composed of all age groups and both sexes and represented 95% of the population sample (Peebles 1971). The burials were located either in cemeteries near the mounds or in areas within the village. The overall hierarchical patterns of the burials and grave goods showed that a majority of individual's derived status based on age, sex, and ascribed status. This assumption was based on the differential distribution of artifact types and who had preferential access to prestige items. The final interpretation derived for the burials at Moundville show that some burials in both mounds and cemeteries near mounds were devoid of grave goods making complete spatial segregation obsolete for the majority of the subordinate individuals (Peebles and Kus 1977:439).

Peebles further argues that the status hierarchy at Moundville would also have associated positions in the regional settlement system. Leaders and high-status individuals in the overall regional system would have supralocal symbols, such as copper badges. Welch (1991:92-98, 133) further details the access of such utilitarian objects through the analysis of distribution and the location of production facilities within Moundville. Welch concluded that outlying communities did not specialize in the production of prestige items or in non-prestige items as anticipated. Therefore, all items were produced and/or restricted to the paramount center (Welch 1991:178). Produced items included shell beads, shell ornaments, shell pendants, and items made from nonlocal rocks and minerals (Knight and Steonaitis 1998:33-43).

However, a recent examination of findings from the 1939 and 1940 roadway excavations at Moundville has shed some new insight into mortuary practices at Moundville. Wilson (2005:109) states that at first glance the burials within the residential areas appear to have been interred below the house floors while the structures were still in use. However, Knight and Steponaitis (1998) have dated the ceramics associated with the burials as being from the Late Moundville II and Early Moundville III phases. The distributions of house structures are similar to ethnohistorical accounts of the Chickasaw and Creek arrangement of kin group housing (Wilson 2010). This combined with the spatial arrangement of burials within these structures after the site had been abandoned has led Wilson (2010) to believe that this was their way of maintaining their group identity, through the burial of their dead in their former kin group's land holdings. This ceremonial display also further emphasized the importance of sociopolitical structure within the society of Moundville and further strengthens the notion of the importance of maintaining a connection with the past (Wilson 2010).

Neitzel (1965:63) also conveys this idea of the structured ranked society, which is evident in both the mortuary practices and the site structure at the Fatherland Site in Natchez. Natchez mythology talks about their mythical ancestor who was said to be descended from the sun and taught the people how to build temples (Swanton 1931:170-171). Therefore, the ruling class was referred to as the Sun Class, and everyone else was ranked into subordinate groups. Swanton (1931:141-149) states that accounts showed that the lower classes were ranked and when the chief or relative of the Sun Class would die, people would often offer sacrifices which would earn them the appreciation of the elite family and thus elevate them one rank within the society. When members of the

Sun Class died those individuals and the sacrificed individuals would be placed inside the temple and their bones would then be placed in baskets during storage. These basketfuls of bones would then be removed during the four or five day ceremony and placed together into a pit (Neitzel 1965:78-79). Burials from this time period were influenced by the contact with Spaniards and were interred with such items as blue and white beads, Fatherland pottery, Addis pottery, Plaquemine jar, incised pottery, shell ear pin, copper gorgets, and various brass objects (Neitzel 1965:78-85).

Moundville and Fatherland sites are examples of sites that can yield valuable information into our understanding of Mississippian practices. Parallels can be seen with other sites across the Lower Mississippi Valley that have similar burial practices and associated grave goods. As further studies from these other regional sites continue, perhaps we will be able to better understand the importance of lineage associations and status during this time period in the Mississippi Delta.

CHAPTER III

PREVIOUS ARCHAEOLOGICAL WORK AT THE SHADY GROVE SITE

The Shady Grove site is located on the west bank of the Coldwater River on a natural levee in Quitman County just south of Marks, Mississippi. The first record of the archaeological site was made by Phillips, Ford, and Griffin in 1941 during their survey of the Lower Mississippi Valley. Griffin described Shady Grove as "the most prolific village site" he had ever seen, noting that they "collected four large sacks in a very short time in only one section and hardly made a scratch" (Phillips et al. 1941:4).

According to Phillips et al. (1941:4-6), the Shady Grove site contained two mounds and a plaza all oriented towards the east. Mound A is described as a large, rectangular Mississippian Period mound with a flat top that measured eighteen feet high and one hundred and eighty feet long with associated house structures located adjacent to the mound. Mound B is described as a much smaller rounded mound about five feet high and seventy feet in diameter and was believed to be constructed during the Baytown Period. Based on the ceramic types discovered during the survey, Phillips suggested the major occupation at the site to be the Twin Lakes phase of the Middle Woodland period (see Figure 1), with occupation ending during the Early Mississippian Period (Phillips et al. 1941: 4-6). However, a subsequent ceramic analysis from samples collected during the 1941 survey was conducted by Brain and Phillips (1979), and has been supported from other discoveries by collectors in the 1970s and 80s that the major occupation is a Baytown component during the Coahoma Phase.

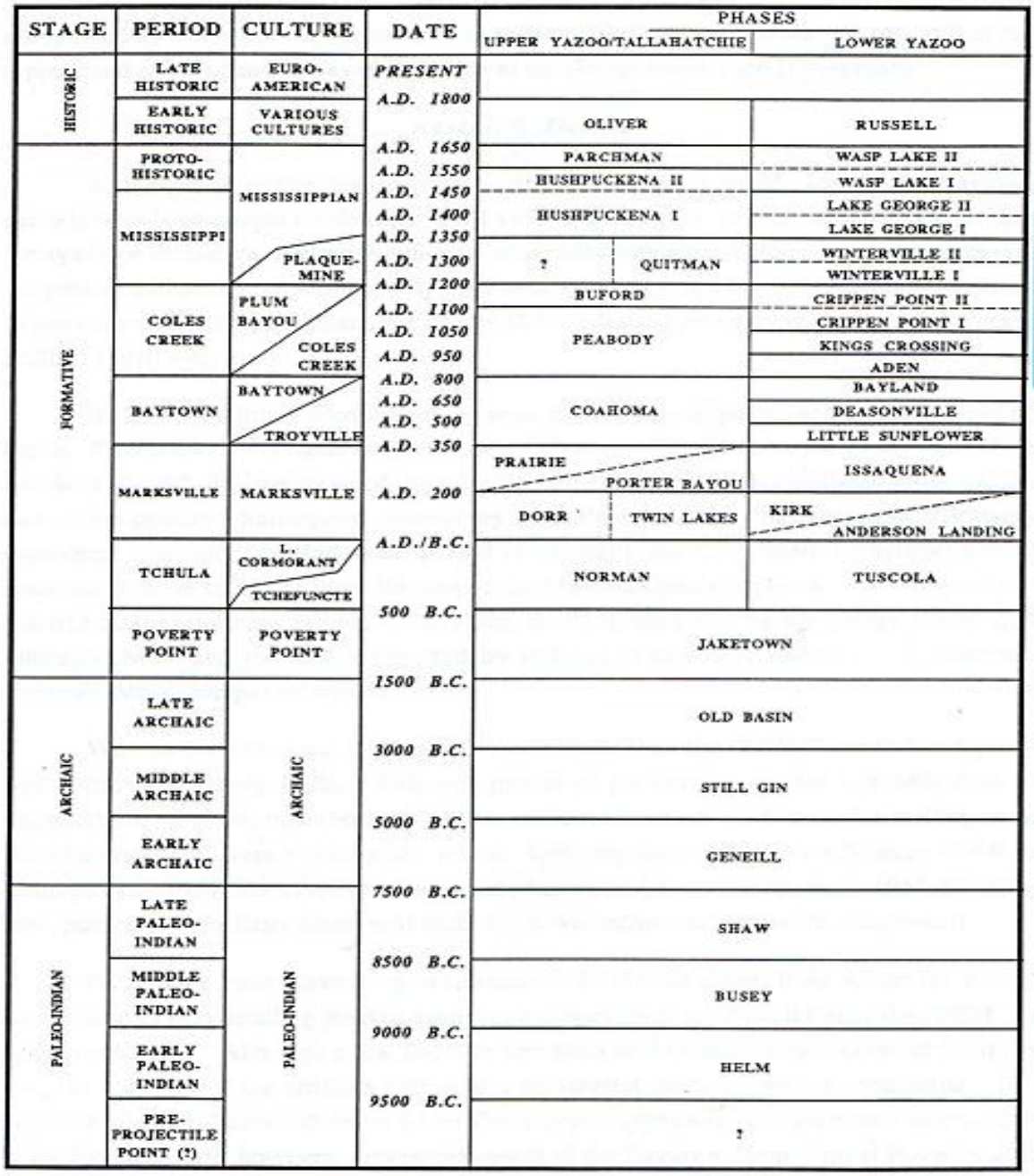


Figure 1. "Ceramic Chronology for the Upper and Lower Yazoo Basin," by Fuller, et Al. 1984, *The Forks Project: An Investigation of the Late Prehistoric-Early Historic Transition in the Alabama-Tombigbee Confluence Basin, Phase I: Preliminary Survey*, p.72.

In 1975, a salvage excavation was conducted by Mississippi Department of Archives and History archaeologists John Connaway and Sam Brookes on the 22 acre site. The smaller mound, Mound B, had been bulldozed, leaving only a two to three foot remnant. Upon exposing a two to three foot thick sub-mound deposit, shovel test pits were placed in and around the area of the mound, which subsequently led to the opening of three test units beneath Mound B. Unit 25S-10E was a 5 x 5 foot unit that was excavated to approximately three feet below the mound sub-surface at half foot intervals (Connaway 1981). The unit showed an east to west slope, which may be indicative of the primary mound cresting just to the east of the unit (Connaway 1981). It revealed the presence of a shell midden from sub-surface to two feet followed by dark soil from two to three feet that ended at sterile yellow sand. Freshwater mussel shells as well as Mulberry Creek Cordmarked and Baytown Plain sherds were recovered from the unit, and C-14 samples were collected for radiocarbon dating. These radiocarbon samples suggested occupation from 600 BC until AD 1450 and the possibility of continuous occupation from at least the Early Woodland and perhaps from the Late Archaic to as late as the Late Mississippian Period (Connaway 1981).

The second unit, 23S-CL, revealed a similar composition as unit 25S-10E with the presence of a shell midden from the surface to 2.2 feet deep followed by a layer of dark soil ending with sterile yellow sand. As seen in Figure 2, 10S-10E on the northern edge of the mound site was a 6 x 6 foot unit that contained a Late Woodland Period shell midden with intrusive Mississippian burials, a phenomenon that has been documented at other Mississippian sites (Connaway 1981). Because Mound B was leveled prior to the arrival of Connaway and Brookes, estimations of the mound's size had to be made.

These estimations are unclear as to whether the Mississippian inhabitants dug down through the mound or into the side of the mound to inter the burials, or whether the mound was erected over the burials.

Figure 2. 1975 Shady Grove Ossuary (Photograph by John Connaway)

The Late Woodland Period shell midden of Unit 10S-10E contained several freshwater mussel shells of various species along with faunal remains and ceramics. The ceramic sherds recovered were identified as Mulberry Creek Cord-marked and Baytown Plain and occur at a ratio of two to one cordmarked over plainware, which correlates with the trend Phillips proposed for the Northern Yazoo Basin (Brain and Phillips 1970:906). The intrusive mass burials included secondary bundle burials and a primary cremation that appears to have been burned on the spot based on the presence of burnt soil and ash beneath the remains. Scattered bones from secondary bundle burials were haphazardly

placed around the cremation. Beneath the skull of the cremated burial were a sandstone pipe (Figures 4 and 5) and a discoidal (Figure 3), measuring 4.10 inches in diameter and made of clay or soft stone. The sandstone pipe appears to be a multipurpose tool used as a pipe, a grinding stone, and a sharpening stone for bone awls as evidenced by a concave grinding area with a smooth bottom, a grooved side opposite the concave side and two conical holes drilled from the top and back which meet to form a pipe (Connaway 1981). Other artifacts along the roadside, found in the vicinity of the mounds, were indicative of Mississippian Period occupation and included effigy bowls, a Mississippi plain vessel, and a large-neck water bottle. A later 1980 roadside grading project between Mound A and Mound B would reveal nine more crania and additional associated Mississippian period effigy bowls.

(left to right): *Figures 3*. Discoidal, and *Figures 4 and 5*. Sandstone Pipe (Photographs by John Connaway)

The most recent of the excavations at the Shady Grove site occurred from December of 2009 through the end of February 2010. The site is in constant threat of being cultivated, and a burial permit was obtained in order to remove the remainder of the burials that were not recovered due to time constraints during the 1975 salvation

operation in order to preserve them and allow them to be reinterred together at a protected location at a later date. John Connaway and Stacy Ann Scott, along with volunteers from the University of Southern Mississippi, Mississippi State University, the University of Mississippi, and Auburn University, started shovel skimming the approximate area of the 1975 ossuary. Unfortunately, the original reference point used in 1975, a light pole, was no longer present, and the surface scraping did not yield any outlines of the original units. Bone piles were exposed during the surface scraping, and four 2 x 2 meter units were laid in using a total station. Further excavation revealed the bone piles to be apparently part of basket loading during Mound B's construction phase. They were neither bundles nor extended burials and contained fragments of numerous individuals within each pile. There were no complete long bone elements or complete crania present, and it even appeared that a sub-soiler may have cut through the area disturbing the remains even further.

After finding neither pit features nor the outline of the 1975 ossuary, a local collector stopped by the site and suggested excavating farther east because twenty years earlier he had unearthed a burial pit containing at least 39 bundles. The suggested area was stripped, and subsequently yielded the outline of a pit feature. This pit feature, named Burial 43 (see Figure 6) for the first burial recorded within the ossuary, revealed 73 crania and several intermingled infants. These burials, much like the ones uncovered in 1975, were loosely bundled remains thrown into the pit with no apparent orientation. On the western edge of the ossuary, the individuals were stacked two and three deep while on the eastern edge of the pit the individuals were stacked up to five deep. Beneath the burials, a layer of shell was discovered and does not appear to be part of the original

Baytown midden, but rather was purposefully laid down before the burials were placed into the pit. Beneath the shell layer as seen in Figure 7, were four post holes that were not intrusive into the burials.

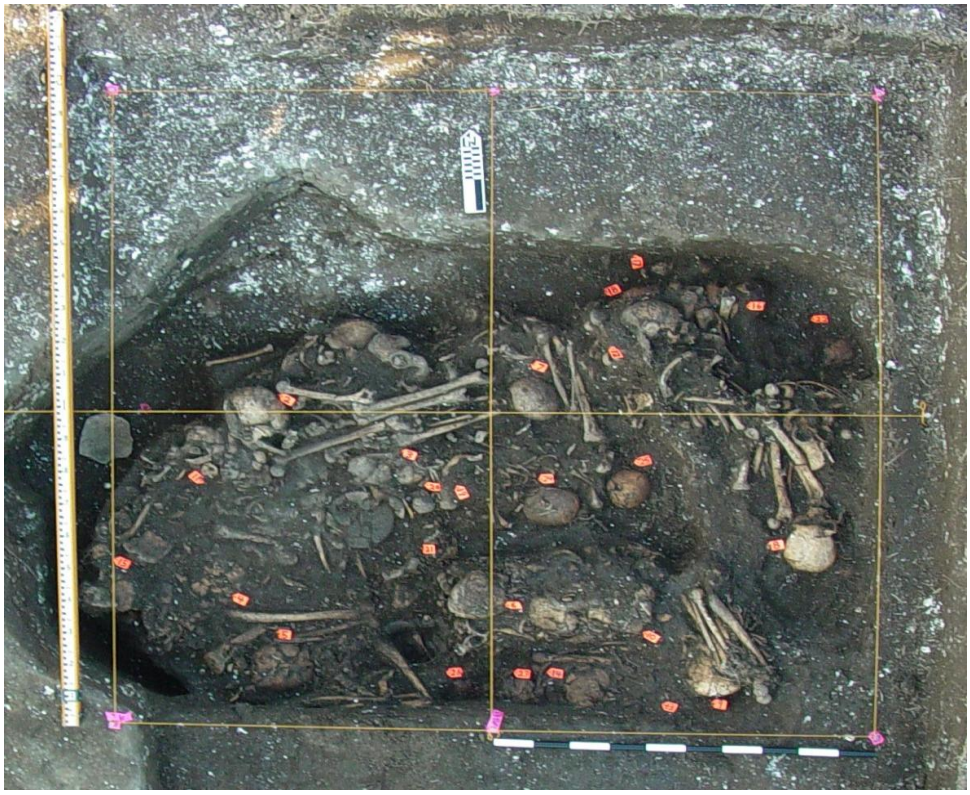


Figure 6. Bu-43 Ossuary from 2009-2010 Excavations

Figure 7. Four Post Holes beneath the Bu-43 Ossuary (Photograph by John Connaway)

During the osteological analysis of the 1975 remains (Scott et al. 2009), questions arose concerning the time period and the arrangements of the burials as a common and purposeful practice for the area. These questions involve site structure and the function of Mound B, which will never be fully understood because it was never properly excavated prior to its destruction. However, questions surrounding the status of the individuals present and the cultural practices observed can be answered through an examination of mortuary ritual and will help in our understanding of the living population at the Shady Grove site.

CHAPTER IV

RESEARCH METHODS

This chapter explores the research methodology used to examine the ossuary excavated in 2010 at the Shady Grove site in Quitman County, Mississippi. The original purpose of the excavation was to remove the remainder of the 1975 burials that were not able to be removed due to time constraints during the salvage operation. The following will discuss field problems and procedures as well as laboratory methods used in the analysis.

After receiving a burial permit from MDAH and a signed permission to excavate on private property form from the land owner, an excavation at the Shady Grove site was conducted by John Connaway and Stacy Ann Scott from December of 2009 through the end of February 2010. Because the remains are under constant threat of damage from cultivation, all burials located during the excavation were removed with plans of repatriating them in a protected area. The original pit feature from the 1975 excavation was unfortunately never found because landmarks used during the original excavation were no longer present. However, during the surface scraping process to try and locate the original 1975 ossuary, another burial pit was located, and plans were changed to remove these burials from the threat of being damaged. After finding the outline of this pit feature, named Burial 43 for the first burial discovered, the ossuary was excavated using trowels, bamboo sticks, and brushes to expose the burials. The skeletal elements from the Burial 43 ossuary were carefully removed one at a time unless a true bundle burial was identified, which was removed in a block for a more controlled excavation in the laboratory. Bones that were removed in the field were placed into acid free paper

bags and appropriately labeled. Bundle burials were pedastaled and taped around the perimeter using clear plastic tape, labeled, and placed into acid free carboard boxes for transport to the University of Southern Mississippi physical anthropology laboratory.

Bones that were in close spatial proximity to a crania were assumed to be associated with that particular skull and were labeled with that skull number. When two crania were located near each other and bundled skeletal elements were recovered from the area in between, the post-cranial remains were identified as possibly belonging to either cranium. For example, if bones were stacked in between Bu 43-64 and Bu 43-65 and no definitive determination could be made in the field, the bones were labeled as Bu 43-64/65.

Photographs of burials removed in blocks along with overview shots were taken during the removal process in order to note their position for subsequent mapping. To make mapping more accurate, scales were utilized and reference points were shot in using a total station for triangulation. Bundle burials brought back to the lab were also photographed during the excavation process to aid in mapping and spatial analysis. With this method of recording, each bone element within each layer of the ossuary was then able to be mapped in using ArcGIS.

During the laboratory analysis of the burials, the remains were washed, sorted, rebagged, and analyzed by me, faculty, and students from the University of Southern Mississippi. The crania were aged and sexed first, and the information used to determine an initial minimum number of individuals (MNI). Next an MNI for both adult and juvenile long bones was determined using the humeri, femora, and tibiae. Then an

analysis of the associated long bones from the field excavations was compared to that of the cranium to determine if both were of the same approximate age and sex.

Estimation of Age and Sex

The metopic suture was utilized for aging infants up to one year of age only. Juveniles crania were also primarily identified by size and texture of the bone. When possible, age determination for younger juveniles was based on dental determination and diaphyseal length (Ubelaker 1989).

In order to separate older juveniles from adults, epiphyseal fusion rates were examined using Schaefer (2008) and Cardoso (2008). In general, if long bones with fused epiphyses (other than the elbow) were recovered with a cranium, the remains were deemed to belong to an adult. By 17 years of age in all long bone elements, significant fusion was observed in both sets of standards used, which thus serves as the cut point between juveniles and younger adults for this study.

Adult age was determined using tooth wear and cranial suture closure patterns. Tooth wear was examined on the maxillary teeth when present to assist in age approximation. Wear was noted as being light (<18) or moderate/heavy (>18) (Scott 1979) to group adult individuals as either being younger (18 to 35 years) or older (36+ years). This method was utilized on the first and second molars and breaks the molar into four quadrants to examine how much of the dentin is exposed for the determination of age. The standard then employed for age determination from tooth wear was Lovejoy (1985:47-56). Since their study was based on the Libben population, a hunter and gatherer group from norther Ohio, it may overestimate ages for Mississippian populations. However, it will still give a relatively rough accurate indication of age.

The tooth wear noted was then compared to the scored rate of suture closure for as many of the 17 suture segments that could be observed (Buikstra and Ubelaker 1994). Many osteologists feel that suture aging is too variable to be used as a valid age indicator and specifically the sagittal suture cannot be relied upon. In a study conducted by Hershkovitz et al. (1997), females were found to have totally open sutures later in life than males and even genetic and pathological factors were found to affect suture closure rate. However, the crania are often among the best preserved element of the skeleton and continue to be utilized by bioarchaeologists for assisting in age determination. At Shady Grove, the method was the only age indicator available for many individuals. Patterns observed in suture closure that could be compared with tooth wear were utilized to determine consistencies in closure patterns when teeth were not present. Based on the observed data, the adults were then grouped into either younger adult (18-35 years) or older adult (36+ years).

Adult sex was determined using the crania and long bones. Sexually dimorphic traits were scored on the crania using the method developed by Ascadi and Nemeskeri (1970; from Buikstra and Ubelaker 1994). These traits were development of the nuchal crest, mastoid process, supra-orbital margin, and the supra-orbital ridge. The mental eminence was also utilized to determine sex but this was not always possible because several mandibles were often recovered with a single skull. Incomplete crania for which neither age nor sex could be determined were labeled as unknown adult. Sexing for the long bones was determined using techniques outlined in Bass (1995). For the humeri (Bass 1995:159-162) and femora (Bass 1995:230; Lubsen 2010), measurements included

the vertical diameter of the head. For the tibia, the proximal epiphysis breadth was used for sexing (Bass 1995:250).

Spatial Analysis

Based on the spatial arrangement observed in the field notes, photographs, and the demographics from the laboratory analysis of the crania, it was determined if a true individual bundle existed. If after the laboratory examination the bones appeared to belong to that particular skull, they were assumed to be a single burial. Most burials however, were extensively comingled so the long bone data was utilized in conjunction with the skull data to identify individuals. Also, bone coloration, preservation, and pathologies were employed to help further distinguish among individuals within the comingled burials. Those bones that could be placed with confidence as belonging to a single individual were then labeled as a true bundle.

During the field excavations a total station was used to denote spatial reference points for mapping the ossuary outline and burials. Tags with letters were placed within the ossuary to aid in overlaying subsequent photographs in ArcGIS. This method assisted in examining the spatial distribution of the crania and in the determination of true bundle burials. Those burials that were determined to be individual or true bundle burials were colored coded separately in ArcGIS. For all other bone elements that were too comingled the same color was used to code these bones.

Comparative Sites in the Region

For the purpose of understanding mortuary ritual in the Lower Mississippi Valley, the mortuary practices observed at Shady Grove were analyzed and compared to those seen at other sites in the Lower Mississippi Valley and the Mississippi Delta. These sites

spanned from the Coles Creek Period (A.D. 1000), which is the transitional period from the Woodland Period to the Mississippian Period, through to the Protohistoric Period (A.D. 1500 to A.D. 1700 based on location) around the time of European contact. Each site was examined and compared to findings at Shady Grove (22QU525) following Binford's (1971) framework, which was used to discern if any common modes could be observed in disposal type, facility utilized, associated funerary objects, and spatial location/distribution.

The first comparative site was Humber, which is located approximately 22 miles west Southwest from Shady Grove. Forty-six bundle burials interred within an ossuary were found dating to the Late Mississippian Period based on copper ornaments and associated shell tempered pottery (Tesar 1976). The demographics revealed that infants, juveniles, and adult males were afforded the same burial practices within the same location and were interred with ceramic vessels. These secondary burials were all oriented in the same direction, which aligns with the seasonal rising of the sun from North to South. Females and elderly males were interred in separate locations as primary extended burials with no associated grave goods and with no particular orientation (Tesar 1976).

The second comparative site is Lake George, a multi-component site containing at least 25 mounds that is located in the Yazoo Basin, approximately 130 miles Southwest of Shady Grove. Excavations show that there was probably a large residential population present and Williams and Brain (1983) argue that the mound complex center itself was only inhabited by a few elite people with occupation beginning around A.D. 470 and extending until A.D. 1500. The burials examined for this study were from the

Mound C summer excavations from 1958 through 1960, and consisted of 185 individuals from 77 grouped burials that date from the Coles Creek (Williams and Brain 1983:421-422). The mortuary analysis showed that the majority of the burials were primary, extended, or secondary bundle burials. Children were most commonly interred as mass burials within the ossuary, while adults were most often buried individually. While no consistent patterning in burial direction exists at Lake George, the most popular apparent orientation was toward the northwest.

The third site is Carson Mounds which is located approximately 20 miles West of Shady Grove, just outside of Clarksdale, MS, and is considered to be comprised of approximately 85 mounds. The site dates to the Late Mississippian Period and contained both individually interred bundle burials and an ossuary with a double layer of bundle burials (James, Wrobel, Johnson, and Connaway 2010). Burial 4 was an ossuary of bundled remains discovered during the University of Mississippi's summer 2008 field school. The burial pit measured "1.72 meters north and 1.91 meters east to west and approximately one meter deep at the bottom of the feature" (James 2010:39). James (2010) found an MNI of 36 burials in the Burial 4 ossuary and of these burials the demographics for 27 individuals were determined of which males where most common. No particular orientation of the burials existed. However, crania seemed to be located at one end of the long bones and the ossa coxae were positioned either directly under the skull or at the other end of the long bones.

The fourth site is Winterville which is located outside of Greenville, Mississippi approximately 94 miles Southwest of the Shady Grove site. The mound component of the site was used into the Late Mississippian and was excavated by Jeffrey P. Brain in

1967. The site consisted of as many as 23 mounds of pyramidal structure, which were up to 17 meters in height. Brain (1989) believed the site function was primarily that of a ceremonial nature with only a small group of individuals residing either on or near the mounds. Sixteen burials were recovered from the upper two levels of Mound B and had a popular orientation to the Northeast (Brain 1989). At Winterville there appears to have been charnel house processing and during the Mississippian Period there was individual interment with associated grave goods according to rank or social segmentation. Unfortunately, bone preservation was poor making demographic analysis difficult and as a result little information about male to female proportions was obtained (Brain 1989).

The fifth is the Oliver site (22CO503), located on the east bank of the Sunflower River in Coahoma County, Mississippi approximately 40 miles West of Shady Grove. The precise chronological dates and significance of the site is still being debated so it unclear whether occupation continued into the Protohistoric Period. Five burials comprised of at least eight individuals were interred with copper or brass burial goods, and there is a trend of these artifacts occurring with juveniles. The first excavation at the site was conducted by Charles Peabody and W.C. Farabee. During the excavation approximately 158 burials were uncovered, but only 45 individuals were brought back to the museum (Thompson 2008). However, Andrew Thompson (2008) reported a duplication of some individuals, thus bringing the MNI to 37. The second excavation at the Oliver site was conducted in 1990 by MDAH archaeologist John Connaway, with aid from the University of Mississippi and the University of Southern Mississippi. During this salvage excavation 24 burials were exposed bringing the total number of individuals recovered from both excavations to 61. However detailed information about orientation

and demography has been skewed because the 1900 excavation methods create an extensive sampling bias (Thompson 2008).

The sixth site is Mangum (22CO601), which is a Plaquemine Mississippian site that dates from A.D. 1400 to A.D. 1600 in the Lower Mississippi Valley about six miles Northeast of Port Gibson, Mississippi. Burials were first unearthed at Mangum during John Cotter's excavations in 1951. Then in 1963 Charles F. Bohannon excavated 24 burials from the site which included eight individual primary burials, three single bundle burials, 12 multiple burials and two isolated crania (Hensley and Penton n.d.). The burials had no particular orientation and showed a higher ratio of males to females (Hensley and Penton n.d., Penton n.d.).

The seventh site is the Ables Creek site, which is located approximately 150 miles west Southwest from Shady Grove in Southeast Arkansas. Ables Creek is a Late Mississippian site that dates from A.D. 1400 to perhaps as late as 1700 with occupation ceasing prior to the time of European contact for the area. The site is approximately 350-400 square meters and is oriented Southeast to Northwest on a natural levee along Bayou Bartholomew. After a tractor operator uncovered bone during a leveling project, the landowners agreed to stop development to allow an emergency excavation of the archaeological material. During this 1986 excavation a cemetery containing 102 burials with between 133 and 137 individuals in varying modes of interment including single and multiple burials of both a primary and secondary nature was discovered (Jackson 1992). Burials along the southern portion of the cemetery appear to be more densely packed together often intruding into one another. The cemetery was believed to have been utilized continuously for 150 years starting around A.D. 1500 (Jackson 1992). Burials

differed in the size and quality of the graves that are representative of the individual's status, the number of inclusive individuals within a single grave, and grave goods. All primary burials had the head oriented toward to South or Southeast (Jackson 1992). There were a high number of juveniles represented and proportions between adult males and females varied among age groups (Tiné 1996).

The eighth site is Mt. Nebo, which is located on the Tensas River in northeast Louisiana approximately 220 miles southwest of Shady Grove and is believed to be a multi-component mound complex that dates to the Coles Creek Period from A.D. 500 through 1200 (Giardino 1982). Neuman (1984) investigated the pyramidal mound from the muti-component mound complex from 1968-1969. The pyramidal mound was excavated in eight stages labeled A through G, with A being the most recent of the construction and G being the earliest of the construction stages (Neuman 1984). Stage A contained burials from 46 individuals and Stage F contained burials consisting of 40 individuals. The Stage A construction period dates from A.D. 860 to 1420 and included primary, extended-supine burials and flexed burials (Giardino 1982). The stage F construction period dates from A.D. 500 to 700 and contained primary burials positioned extended-prone and flexed and single and multiple bundle burials. Several of the adult burials from the stage F burials were found with associated artifacts, possibly grave goods. Male to female ratios show that males were more prevalent in Stage A and less than females in Stage F (Giardino 1982).

These comparative sites were chosen based on their location relative to Shady Grove. They reflect the types of burial modes that were present in the region during the Mississippian period. Also, the artifact typology exhibits the common types that were

represented during this time period and were given to the dead as both a sign of respect and representative of items that the deceased used during their life. The orientation of the burials also reflect the attention or lack thereof to cosmology and the impact that this belief had within the culture. The similarities of observed mortuary practices between the comparative sites and shady grove will be discussed in further detail in the following chapter.

CHAPTER V

RESEARCH RESULTS

This chapter details the results of the demographic, spatial, and artifact analysis of the Burial 43 ossuary at Shady Grove. It also examines how this site compares in these aspects with what has observed at other sites in the Lower Mississippi Valley and specifically the Mississippi Delta to determine if there are any observable patterns. Criteria were based on Binford's (1971) model for mortuary studies. The first dimension of Binford's model examined was the documentation of the demographics of the cemetery (age and sex) including the minimum number of individuals. The second dimension considered the disposition of the burial including the degree of articulation, the number of individuals, and any mutilations or modifications. Thirdly, an observation of how the body was interred (single or multiple burials) was made, including the location of the cemetery; the location might have been within the village, on the periphery, under a house floor, or within the contexts of a mound. In the last dimension, the spatial analysis was conducted using ArcGIS to explore the position of burials and their association with artifacts. The data were then synthesized for use in the examination of the sociopolitical structure of the ossuary.

Minimum Number of Individuals Analysis

During the field excavations at Shady Grove, crania were utilized to determine a minimum number of individuals (MNI) for the Bu-43 ossuary. All crania unearthed were given a tag number corresponding to the sequence in which they were discovered. The MNI from the initial field analysis was 74; however, some burial numbers, namely 43-28, 43-48, and 43-70, were skipped during the labeling process in the field giving an

inaccurate field MNI. Furthermore, several soil blocks still needed excavation in the laboratory. Once this was completed, a more thorough examination based on the size, thickness, and cranial suture closures was conducted; this brought the MNI to 78.

The long bones recovered and labeled from the field as belonging to specific crania showed that many of these burials were extremely comingled. An initial inventory of the long bones in the laboratory showed that often multiple individuals were present within a single labeled burial; for example, one burial elements included from up to 10 individuals. Due to this highly comingled state, an analysis of the long bones was conducted to determine the minimum number of individuals using these elements and then compared to the MNI from the crania.

The long bones were recorded as to whether the proximal epiphysis, proximal third, middle third, distal third, and distal epiphysis were present. As seen in Table 1, the analysis of the adult left femora showed 34 individuals present, and for the adult right femora there were 41 individuals, based on the presence of the midshaft. The adult left tibiae showed the presence of 26 individuals and the adult right tibiae reflected 28 individuals based on the midshaft. The adult left humeri showed that there were 34 individuals and the adult right humeri had 32 individuals based on the presence of the midshaft. The MNI determinations observed during the laboratory analysis reflect the presence of at least 41 adult individuals.

The long bones determined to be juvenile based on the lack of epiphyseal closure suggested that there was an MNI of 15 individuals under the age of 20. The diaphysis was the best preserved region of the long bones and therefore, used to determine the MNI. The left femur revealed six individuals and the right femur showed the presence of

15 individuals based. There were 11 left humeri and nine right humeri. The left tibia revealed six individuals and the right tibia revealed seven individuals.

Table 1

Long Bone Inventory Utilized in Determination of MNI

	Proximal Epiphysis	Proximal Third	Middle Third	Distal Third	Distal Epiphysis
Adult Left Femur	19	33	34	27	14
Adult Right Femur	22	32	41	29	15
Juvenile Left Femur	5	6	6	6	3
Juvenile Right Femur	8	14	15	8	7
Adult Left Tibia	14	19	26	24	12
Adult Right Tibia	19	21	28	29	19
Juvenile Left Tibia	2	6	6	3	2
Juvenile Right Tibia	3	7	7	3	3
Adult Left Humerus	16	23	34	34	21
Adult Right Humerus	16	27	32	33	27
Juvenile Left Humerus	7	6	11	11	7
Juvenile Right Humerus	4	9	9	5	3

The analysis of the crania shows the presence of 78 individuals while the long bones show the presence of at least 56 individuals. Most of the long bones were incomplete due to the comingled nature of the ossuary. The long bones were often found

stacked whereas the crania that were often grouped closely together but were not as frequently stacked on top of one another. However, the relative similarity in the numbers of humeri, tibiae, and femora suggests that entire skeletons were being interred or that there is the inclusion of at least major bones for each individual. Therefore, the final MNI of 78 will be used (see Appendix A). It should be noted that there is on-going analysis of the series, so this figure may change.

Age and Sex Estimations

In the examination of the juveniles, the size and density of the cranial vault in conjunction with suture closure, specifically the metopic were utilized for aging infants up to one year of age only. Although some investigations suggest the metopic suture can fuse as late as two years (Baker et al. 2005), a study conducted by Vu et al. (2001) has shown that in more modern societies the metopic suture was fully fused by nine months of age. There were five infant crania and the other 17 unknown crania that were believed to be juvenile based on size and texture as well as the size and lack of epiphyseal fusion in any associated long bones recovered. Age determination for them was based on diaphyseal length when possible (Ubelaker 1989). Based on these criteria, five infants and 17 juveniles were present (see figure 9).

For the adults, tooth wear was the primary aging technique used whenever possible, placing individuals into two categories, younger (<35 years) and older (>35 years). Using the method, 10 younger adults and four older adults were identified. Those crania that could not be aged with tooth wear were aged using cranial suture closures of the vault (Lovejoy and Meindl 1995). Since the crania from Shady Grove were well preserved, having been removed in a block in the field for careful excavation in the

laboratory, most scoring points could be evaluated. In those crania that had maxillary dentition, the scores for tooth wear and suture closure showed an overlap in determining younger individuals when the suture closure at bregma were either open or had minimal closure and both anterior saggital and lambda were open. Therefore, those individuals for who tooth wear were not determined due to lack of associated molars, these suture patterns were utilized for the identification of younger individuals. Using these criteria, it was determined that there were 36 younger adults and 12 older adults (see Figure 8 and Figure 9).

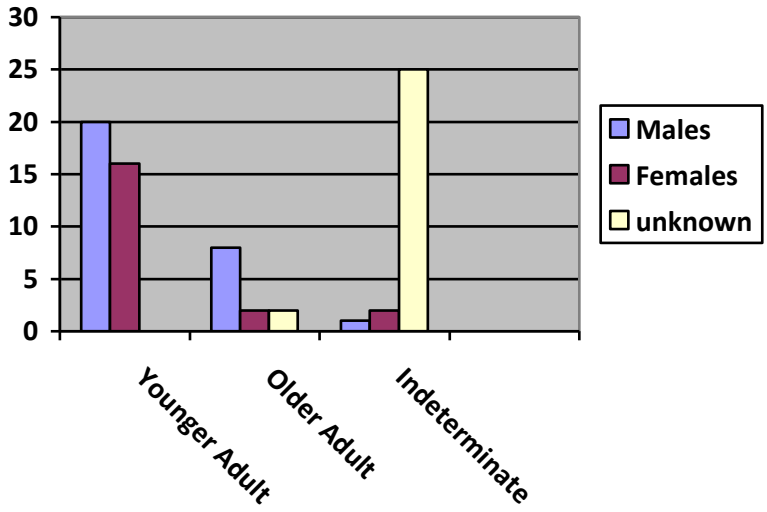


Figure 8. Demographics for Shady Grove Based on Cranial Data

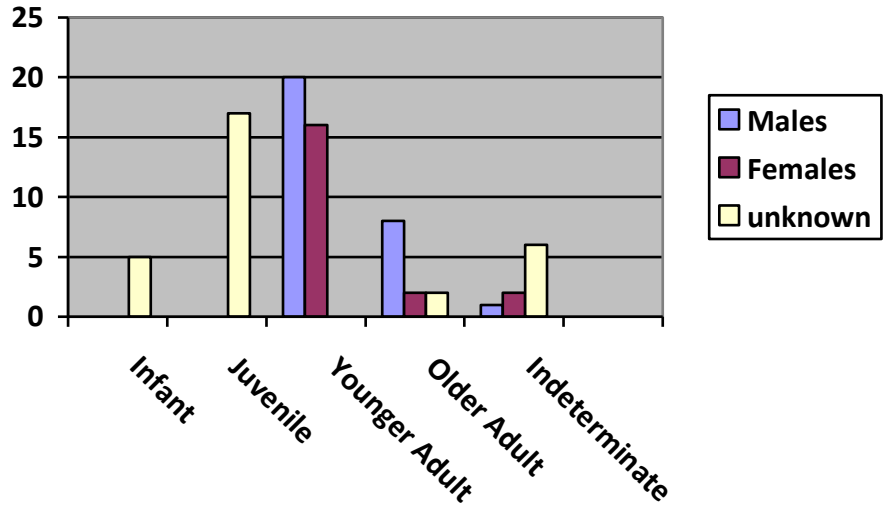


Figure 9. Final demographic distribution

It appears that all age groups are present within the ossuary observed at Shady Grove. A representative sample should consist of approximately a third of the population being juveniles, a third being younger adults, and a third being older adults. Among those dying before adulthood, there should be a greater number of infants dying than children and older juveniles should have survived the typical childhood stresses (Buikstra and Mielke 1985). Based on life tables devised by Weiss (1973), 30-50% of the population should have died by age 15. At Shady Grove 28% of the population was juvenile and is within the range of what would be expected based on the life tables.

The adult sample does not correspond well to expectations, however, since young adults outnumber older adults by a three to one ration. The larger sample of younger adults than older adults could be due to the fact that secondary aging methods were utilized and are not as reliable. The higher mortality rate seen among younger females than older females at Shady Grove may be due to death during childbirth (Milner 1982:

136-137). The lack of older individuals could also be from poor bone preservation as they have less calcium and are more susceptible to taphonomic processes (Walker 1995).

For the purpose of comparing juveniles observed at Shady Grove to the other sites, the infants, juveniles, and subadults were all grouped together. Therefore, the demographics at Shady Grove show that 28% of the population was juvenile. This corresponds to what is observed at Mt. Nebo that has 30% juveniles, 31% at Mangum, and 26% at Oliver. Lake George had the highest percentage of juveniles comprising 56% of the population. Therefore, Shady Grove falls in the low end for the percentage of juveniles observed among the comparative sites. In contrast, Shady Grove had the greatest proportion of young adult males and young adult females as compared to the other sites (Table 2). At Shady Grove, 74% of the population had died before the age of 35 years as compared to 59% at Lake George, 36% at Ables Creek, and 49% at Mangum having died before the age of 35.

Table 2

Distribution of Age and Sex at Comparative Regional Sites

	Shady Grove	Humber	Lake George	Carson	Oliver	Mangum	Ables Creek	Mt. Nebo
Juveniles	22	15	100	4	14	33	24	0
Young Adult Males	20	2	5	3	10	8	4	11
Young Adult Females	16	10	2	2	5	6	8	10

Table 2 (continued)

	Shady Grove	Humber	Lake George	Carson	Oliver	Mangum	Ables Creek	Mt. Nebo
Older Adult Males	8	4	10	8	10	13	14	7
Older Adult Females	2	2	6	4	12	6	9	6

An examination of sex indicators at Shady Grove revealed the crania of 22 male adults, six probable male adults, 18 female adults, two probable female adults, and 28 crania for which neither age nor sex could be determined (Figure 12). For the long bone elements the diameter of the head of humerus showed 11 males and eight females among those that could be measured. The tibia was examined using the proximal epiphyseal breadth and showed the presence of eight males and seven females for those that could be measured (Figure 11). The femoral head was used to estimate sex based on the scoring method from Bass (1995) and Lubsen (2010) (Figure 10). Using Bass' (1995) method there were 23 males and 13 females among those that could be identified. For Lubsen's (2010) method, which was specifically based on prehistoric Southeastern populations, there were 26 males and 10 females for those that could be identified.

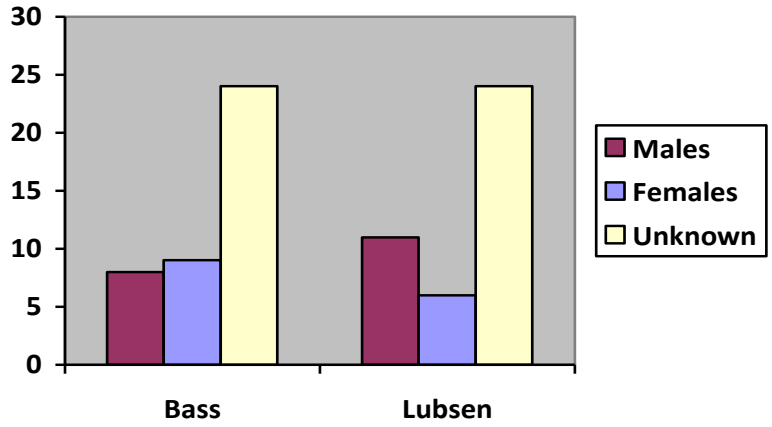


Figure 10. Sex Distribution Based on Diameter of the Femoral Head.

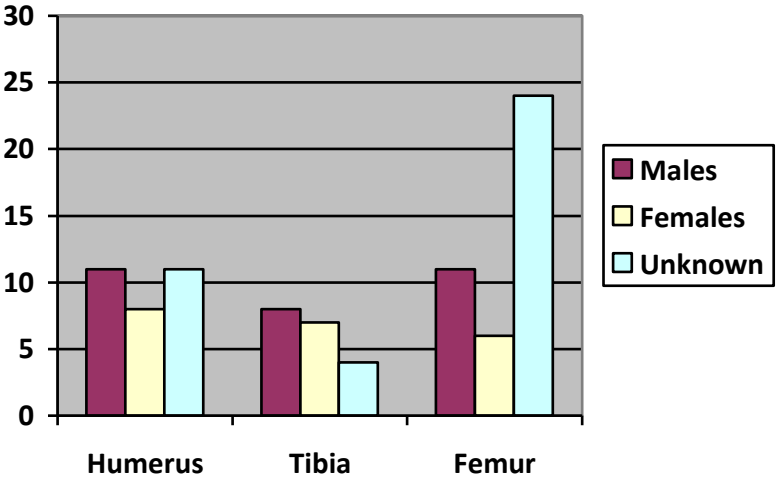


Figure 11. Sex Distribution Based on Long Bone Measurements.

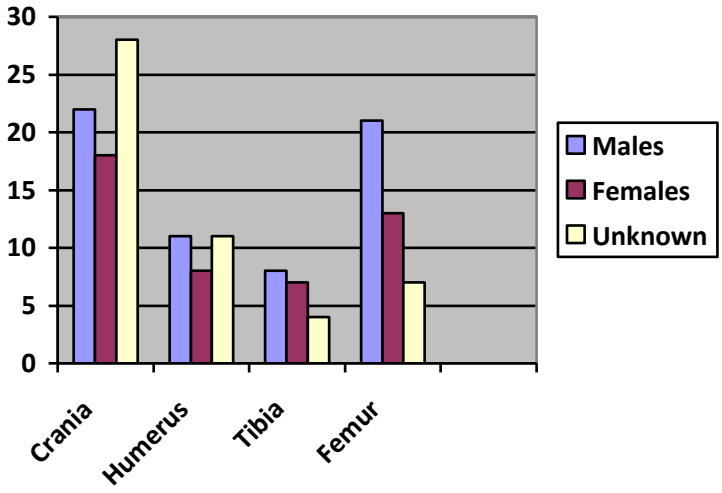


Figure 12. Comparison of Sex Distributions Using Cranial and Postcranial.Elements.

The long bones reflect a similar ratio of males to females as observed with the cranial analysis. However, due to fewer long bones being recovered than crania, the crania were deemed to be more representative of the population and were utilized, showing 55% of the population to be male and 45% to be female. Carson site shows virtually the same distribution of males to females and Mt. Nebo shows a similarly balanced ratio of 49% male and 51% female. Oliver shows a slightly greater number of males to females with 59% of the population being male and 41% female, as did Mangum with 61% male and 39% female.

These results appear to sugges that a slight preferential treatment in burial location was given to males over females at several sites in the Lower Mississippi Valley, but other explanations may exist. The slightly higher number of males to females could be due to the ambiguous nature of sex determination using the crania and long bones. Additionally, the slightly greater number of male individuals observed may be due to the fact that male bones are more robust and as a result have greater survivability. Females can sometimes after menopause take on a more robust appearance and can be mistaken

for males (Walker 1995). However, minimally the presence of both males and females shows that both groups were afforded the same access to burial location.

Burial Mode and Spatial Results

The burials were interred within an ossuary at Shady Grove and were found under Mound B, which may indicate its function as a burial mound. Burials found in association with mounds were also seen at Lake George, Winterville, Oliver, and Mt. Nebo. Ossuaries were also noted at Humber, Lake George, and Carson. However, at Lake George only children were interred within the ossuary. Carson was the only site that showed similarly loosely bundled burials interred in a disorderly fashion. However, there was only one layer of burials seen at Carson while stacked burials of up to five deep were observed at Shady Grove. Therefore, Shady Grove is unique in that it has an ossuary associated with a mound that shows the presence of males, females, and all age groups that were stacked up to five deep. The 1975 ossuary was similar to the Burial 43 ossuary in location and burial mode, except it contained what appears to be a central cremation of at least three individuals based on the presence of three burnt mandibles.

The spatial analysis, as seen in Figure 13, aided in clustering crania together to show grouping patterns within the ossuary at Shady Grove. The crania were more commonly found together in the central and eastern portion which is what would be expected since the burials were stacked four deep in the central portion and five deep on the eastern portion of the ossuary. While all of the burials are bundles, only four of the burials (Bu 43-6, Bu 43-9, Bu 43-10, and Bu 43-56) were tightly bound or true bundles, based on information from the laboratory and ArcGIS analyses. The majority of burials were interred in a disorderly fashion with no apparent orientation. These burials appear

to have been loosely bound and/or simply placed in baskets that were later brought out to the ossuary and dumped into the common burial pit. Juveniles may have been given the same treatment as adults and simply became more scattered throughout the ossuary due to their small size and as the result of taphonomic processes. Also, at least four younger juveniles were found associated (comingled) with adult individuals (Bu 43-4, Bu 43-5, Bu 43-7, and Bu 43-36).

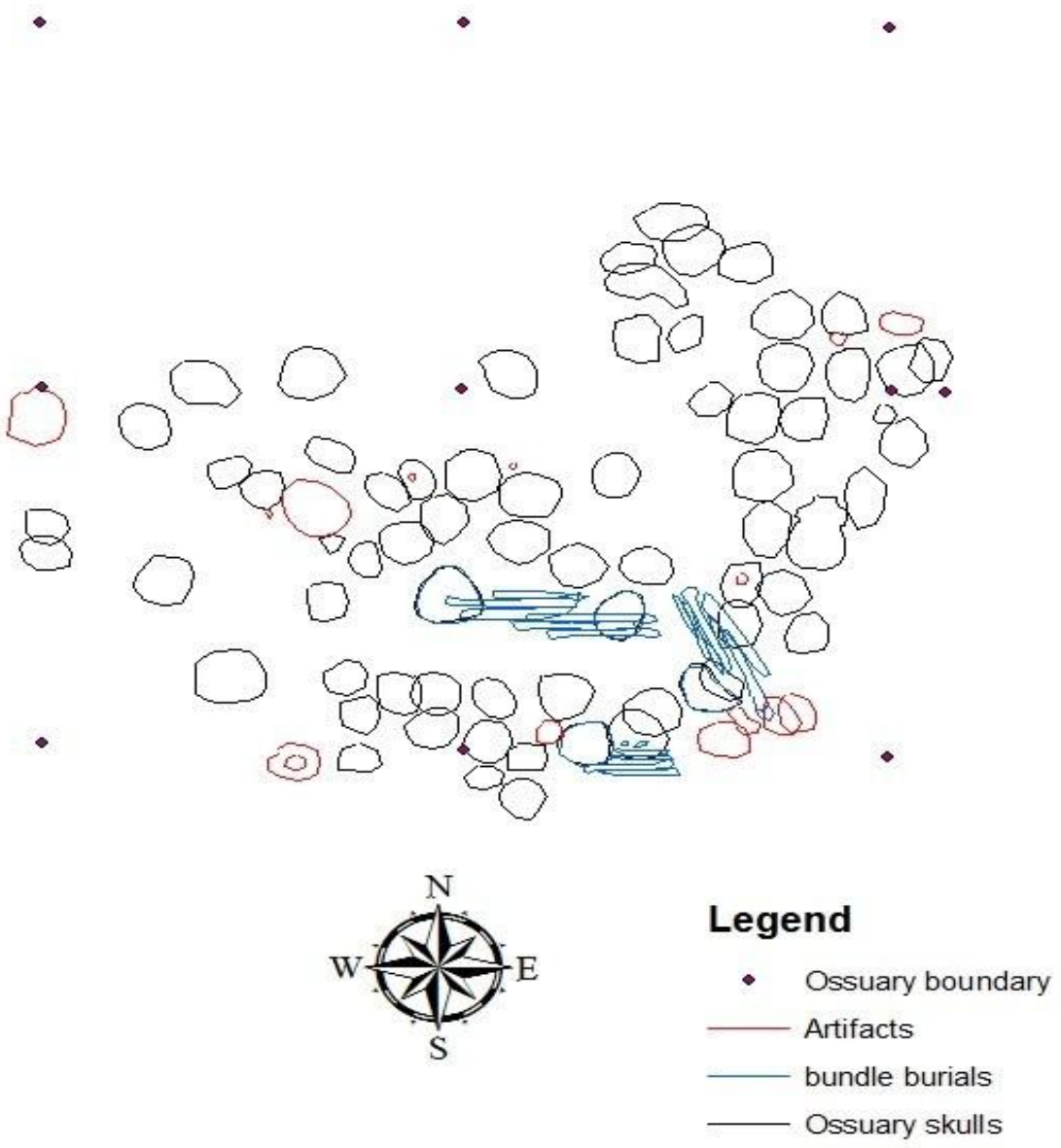


Figure 13. Distribution of Crania and the Location of Four True Bundles from Bu-43 Ossuary at Shady Grove.

Some burials showed that they had been interred in varying stages of skeletonization. Burial 43-11, a 13 to 15 year old juvenile, appears to have been in the latter stages of decomposition, as evidenced by articulation of the left arm and vertebral column. Five other skeletal remains showed similar patterning. One burial (Bu 43-31) showed signs of long term storage in a charnel house with the presence of a mud dauber's

nest in the skull. Another burial (Bu 43-24) has what appear to be signs of cutmarks possibly from a bone picker defleshing the remainder of the tendons from the tibia (see figure 14). Therefore, Shady Grove represents a Mississippian period charnel house processing related cemetery.

Figure 14. Possible Cutmarks on the Tibia of Bu 43-24 from a Bone Picker During Charnel House Processing.

Only a few burials at Shady Grove were afforded a significant amount of time and energy. The burials that show articulation were the last to die, and it may have been one of their deaths that initiated the clearing of the charnel house, a phenomenon also seen at Carson and Ables Creek. As seen in Figure 15, crania at Shady Grove were often grouped together and burials were interred with no real organization. Also, two burials were face down, which may be due to a hurried burial ceremony or may indicate that placement of burials within the ossuary was unimportant. The other explanation may be that space for the burials was limited as they appear to have been interred within the boundaries of a four post structure under Mound B. The burials were also found stacked

which is something not seen at any other site in the region. However, the disorganized fashion of the burials interred with no specific orientation is something that appears to be commonly seen among sites in the Lower Mississippi Valley. However, the placement of the burials within a structure under a mound and the fact that they were stacked bundles is something quite different.

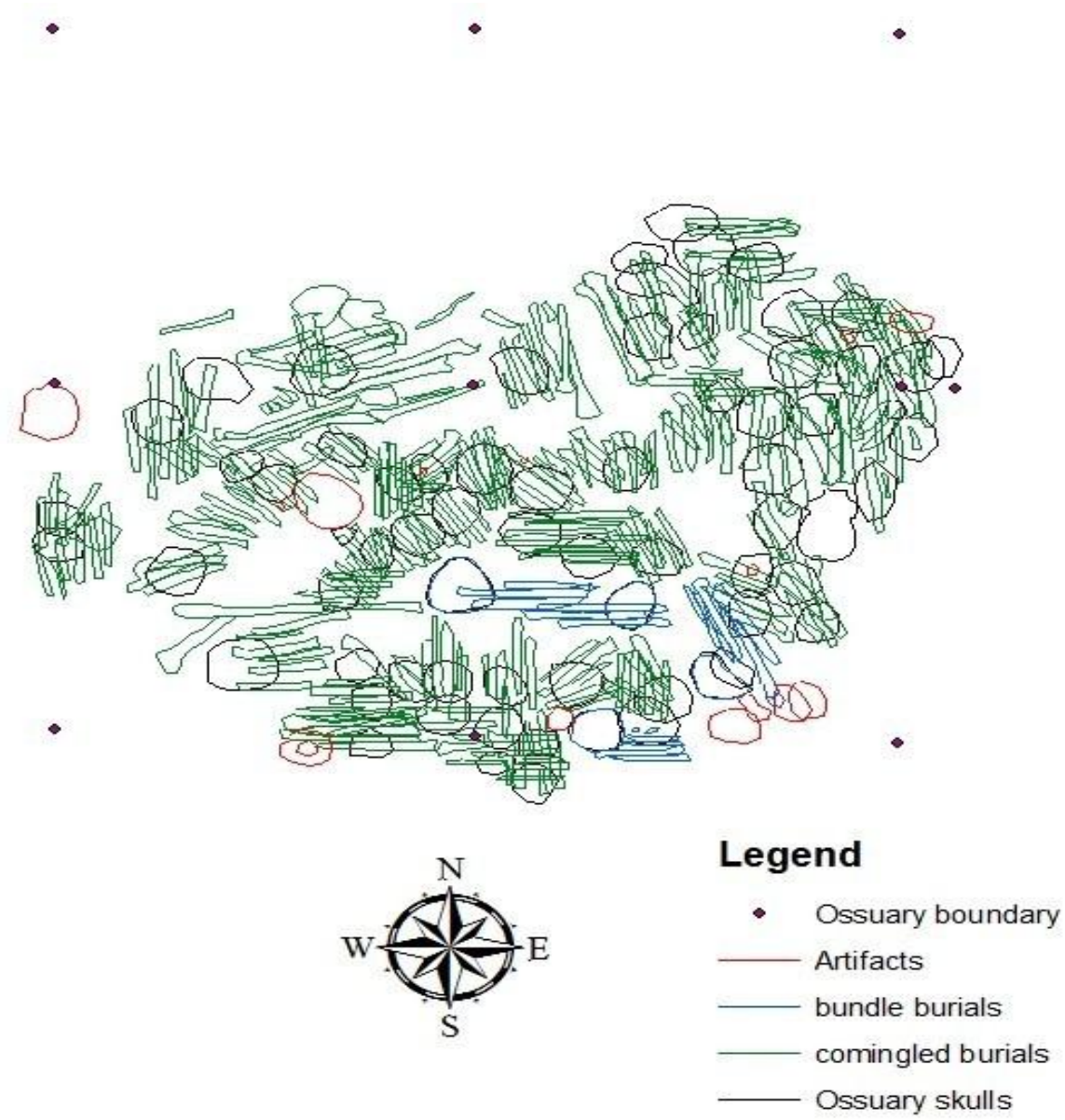


Figure 15. Spatial Distribution Observed at Shady Grove.

Artifact Analysis Results

There were several artifacts interred with the burials at Shady Grove. Most of the artifacts were recovered at the lowest level of the ossuary. The highest concentration of was in the southeast corner of the ossuary which corresponds with the presence of the two bundle burials (see Figure 16). There were 12 vessels, all Mississippi Plain var. *Neeley's Ferry* with no designs, located within the Bu 43 ossuary along with bone awls, three shell gorgets, a conch shell bead, and a copper ornament (see Appendix B).

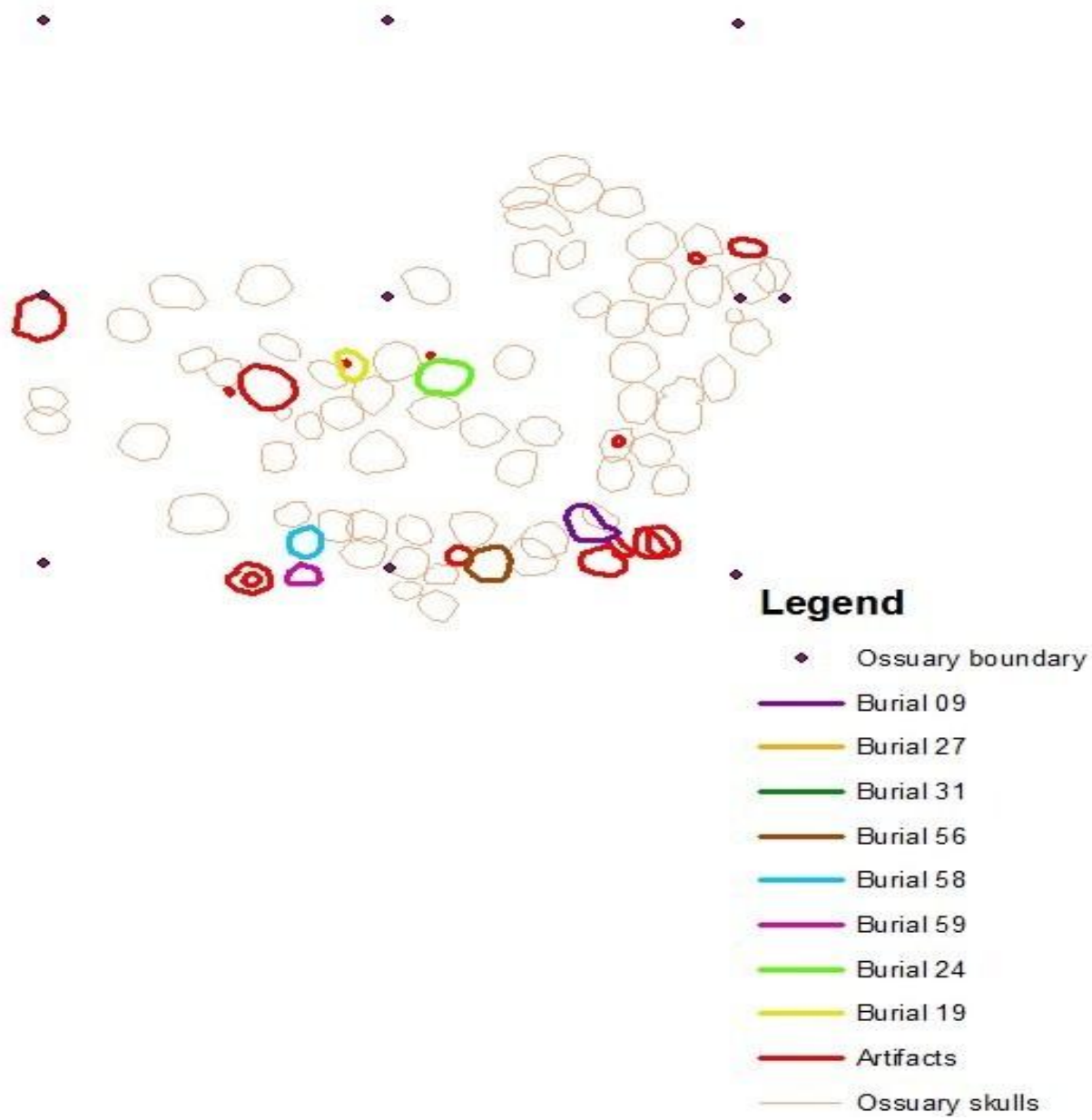


Figure 16. Spatial Distribution of Artifacts and Spatial Association with Crania.

There were seven vessels that were associated with the entire ossuary that were not unique in style as compared to other vessels found at the comparative sites. Five vessels (Vessels 5, 6, 7, 9, and 10) were found associated with two bundle burials in the southeast corner of the ossuary, and of these two appear to be non-utilitarian and were unique in style (see Table 6.3). Vessel 5 was placed next to Vessel 9 and is associated

with Bu 43-9, a young female, and Bu 43-56, a young male, at the lowest depth of the ossuary in the southeast corner. It is a short neck bottle with a plain rim and slightly everted neck. Vessel 6 is also associated with Bu 43-9 and Bu 43-56. It is a tetrapod bottle with a double stirrup neck and a gourd shaped body. Vessel 7 is located on the southeast corner of the ossuary and is associated with Bu 43-9 and Bu 43-56. It is a long neck bottle with a straight neck, raised collar around the base, and a flat round bottom. Vessel 9 was located in the southeast portion of the ossuary and was associated with Bu 43-9 and Bu 43-56. It is a bean pot with a handle and opposing lug. Vessel 10 was located in the southern portion of the ossuary just west of the skull of Bu 43-56. It is a small, shallow effigy bowl with a plain rim that depicts either a fox or a bat.

Table 3

Description and Location of Artifacts Recovered from the Bu-43 Ossuary.

Vessel	Burial Associated	N-S Coord	E-W Coord	CMBS	Description
1	Entire ossuary	87.84 N	13.84 E	72	Large plain bowl rim sherd
2	Entire ossuary	87.64 N	14.54 E	56	Small bowl w/ flat bottom
3	Entire ossuary	87.64 N	14.68 E	58	Small round open neck jar
4	Entire ossuary	87.20 N	14.74 E	62	Medium deep bowl
5	Bu 9, Bu 56	87.12 N	15.86 E	58	Large short neck plain jar

Table 3 (continued).

Vessel	Burial Associated	N-S Coord	E-W Coord	CMBS	Description
6	Bu 9, Bu 56	87.12 N	15.70 E	65	Tetrapod bottle w/ 4 handles
7	Bu 9, Bu 56	87.08 N	15.60 E	67	Long straight neck plain bottle
8	Entire ossuary	88.18 N	16.00 E	73	Large plain jar rim sherd
9	Bu 9, Bu 56	87.12 N	15.86 E	on vessel 5	Small bean pot w/ upcurved handle
10	Bu 56	86.81 N	15.18 E	66	Small effigy bowl (fox/bat)
11	Entire ossuary	86.49 N	14.28 E	on vessel 12	Small bean pot w/ upcurved handle
12	Entire ossuary	86.49 N	14.28 E	130	Large rounded jar w/ everted neck

Shady Grove has the same type and variety of artifacts as seen at the other sites, such as those recovered during Tesar's excavations at Humber and from the non-ossuary artifacts recovered from Carson. This may indicate that these artifacts recovered at Shady Grove were locally produced since they occur at other sites within the region. The vessels associated with the true bundle burials (Bu 43-49 and Bu 43-56) at Shady Grove were found near the heads of the individuals. Similar vessel placement near the crania was also observed at Humber, Oliver, and Winterville and may exemplify a shared cultural practice.

Two of the vessels, the four legged double stirrup handle (Vessel 6) and effigy bowl (Vessel 10), appear to may have been ceremonial in use. Vessel 6 interred with a young female was placed into the cranium of the individual with the mandible wrapped around the neck of the vessel. It is different from other artifacts seen at other sites in the Lower Mississippi Valley, which may signify its use as non-utilitarian. It appears to be a compound vessel, a bottle on top of a gorge shaped jar. A similar vessel was found at Nettle Ridge in Mississippi County, Arkansas, but it was not found in a mortuary context, it lacked legs, and it had only three strap handles (Phillips 1970).

One effigy bowl (fox/bat) was found interred with a young male individual at Shady Grove, and effigy bowls were also noted as being recovered at Humber interred with a young male and juvenile individual (Tesar 1976). A bean pot (Figure 17) found at Winterville is very similar to two bean pots (Figure 18) recovered at Shady Grove, and these varieties have thus far only been recovered at these two sites within the Mississippi Delta. The variations between the shape and size of the handles on the bean pots seen at the three sites show that they were made by different individuals. All three appear to be similar to bean pots recovered from Cahokia which may show that they were produced locally and based on those made at Cahokia. The Tippets Bean pots seen at Cahokia, were dated as belonging to the Moorehead Phase from A.D. 1200-1275. If the Shady Grove bean pots are reproductions based on the Tippet Bean pots from Cahokia then it would date the Bu-43 ossuary to at least the Middle Mississippian period.

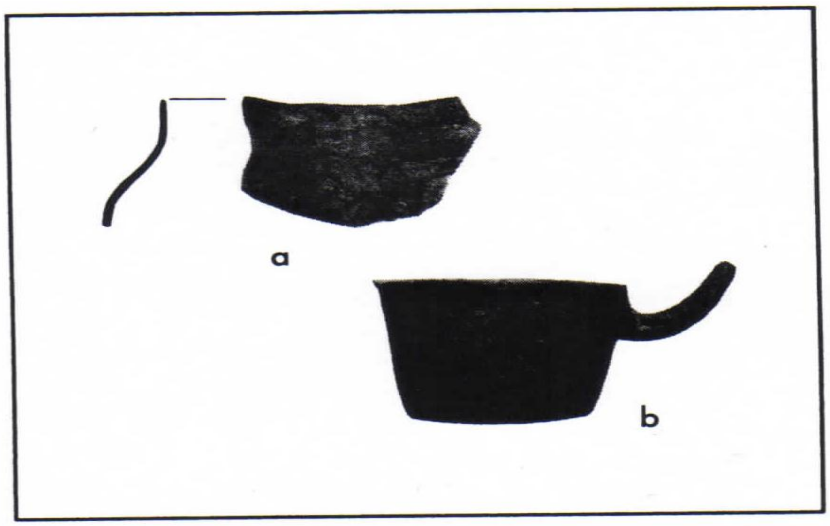


Figure 17. Vessels from the Burials at Winterville, "a. Coker Plainware Jar ; b. Tippets Bean Pot," by Jeffrey P. Brain, 1989, *Winterville: Late Prehistoric Culture Contact in the Lower Mississippi Valley*, vol. 23, pp. 76.

Figure 18. Two Bean Pots Recovered from the Bu-43 Ossuary at Shady Grove.

Six bone awls were found scattered throughout the central portions of the Shady Grove ossuary. They were not determined to be associated with particular burials. Bone

awls were also noted at Oliver, Winterville, and Mt. Nebo. Three finished shell gorgets that were plain with no designs were also recovered in the central portion of the ossuary at the lowest level of the ossuary and underneath the burials. The first shell gorget has a notch and two holes drilled in the top of it. It is oval in shape but was not associated with a particular burial. The second shell gorget is circular with a single drilled hole and was located under Burial 43-19, which consisted of two juveniles. The third shell gorget is triangular with one drilled hole and was located under the cranium 43-27, a young male adult. All three gorgets appear to be have been manufactured by the members of the community as they were similar shells as those recovered from the shell midden and no similar shell gorgets were noted at the comparative sites. The conch shell bead was recovered by Burial 43-24. The conch shell bead found at Shady Grove was likely obtained through trade. Marine shell artifacts were also present at Ables Creek and Oliver that were likely obtained through trade.

The copper ornament at Shady Grove was found on the head of humerus of a female individual in a comingled bundle burial in the northeast corner of the ossuary. This copper ornament had a stamped ring around the edge with what appears to be a forked eye impression in the middle. Copper artifacts were found in several burials at Oliver. Based on ethnohistoric accounts they were believed to be highly sought-after items and thus restricted to only the elite members of the society (Belmont 1961:147). Copper artifacts were also recovered at Humber and Mangum associated with male individuals. One of the copper plates recovered from Mangum depicted a falcon (Cotter 1952) and is believed to be a ceremonial/religious iconography.

The artifact distribution seen at Shady Grove suggests there are two true bundles that may exhibit preferential treatment based on their inclusion with two unique items of a non-utilitarian, ceremonial or religious purpose. The presence of more collective offerings shows that all age groups, and both males and females were afforded access to the same locally produced and trade goods. The burials at Lake George and Winterville were also found within the context of a mound and contained bundle burials but these bundle burials did not contain any grave goods. Therefore, the artifacts associated with bundle burials within an ossuary in the association of a mound at Shady Grove are something unusual for the region.

The difference in vessel artistic style between Shady Grove and that seen at other sites in the region may indicate that many of these artifacts were locally produced. The bean pots show that similar stylistic ideas were being shared between the cultures in the region that mimicked those found at Cahokia, but that were clearly made by different individuals. Artifacts were found associated with male and female adults and children at Shady Grove, Winterville and Oliver. This idea of "collective offerings" was also exhibited at the Pocahontas Mound Site just below the Yazoo Basin of the Mississippi Delta by Steponaitis (1991:219). Burials at Pocahontas were described as extended and were randomly interred within the mound with no specific orientation. The artifacts recovered were rarely found in direct association with burials and were deemed "collective offerings" (Steponaitis 1991:219). At Shady Grove, the majority of the artifacts were strewn throughout the ossuary not in direct association with a true bundle or found associated with a particular skull. A greater abundance of artifacts was located in the southeast portion of the ossuary associated with a young male and young female

individual, which may indicate higher status individuals. Therefore, it appears all individuals were afforded the same access to both locally produced and trade items.

Discussion

Shady Grove has a large sample size for studying mortuary rituals in the Mississippi Delta during the Mississippian Period. Also, the preservation of the skeletal remains allows for good determination of age and sex for the individuals present. This sample will therefore help in our understanding of cultural practices in the region and assist in the determination of the sociopolitical structure present at the site.

Based on Binford's (1971) use of demographics in determining mortuary practices, all age groups and both males and females were afforded access to the same burial location at Shady Grove. The demographics show slightly more males than females but not a significant difference as to indicate that there was preferential treatment between sexes. Younger juveniles were often found associated with adult male and female individuals. The presence of all age groups and sexes and the inclusion of artifacts that were deemed not to be associated with a single individual but rather the entire ossuary is one indication that this may have been either a single kin group of a complex chiefdom or perhaps individuals from the entire population from a "Big Man" society or simple chiefdom.

Based on Binford's method for examining the disposition of the burials, it appears that four of the burials, considered true bundles, were more tightly bundled and each contained the remains of only a single individual. The spatial analysis shows that these four bundle burials were afforded more horizontal and vertical spacing than the other burials within the ossuary. The burials were interred with no specific orientation and in a

disorderly fashion. Also, the skeletal remains at Shady Grove were found in varying stages of decomposition, which indicate that charnel house processing probably did occur and that some event initiated the clearing of this charnel house. This practice was also observed at both Carson and Ables Creek.

The Carson site was very similar to Shady Grove in that burials were bundled and interred in a disorderly fashion with no specific orientation. However, the ossuary at Carson was only a single layer of burials and contained no grave goods (James 2010). The stacked burials at Shady Grove were up to five deep on the eastern portion of the ossuary which may indicate a multiple episode burial rather than one single burial event. However, the uppermost burial, Bu 43-9, was resting on Vessels 5 and 6 and extended down to the lowest level of the ossuary. Also, Vessel 6 was shoved into the cranium of the burial and the associated mandible was also wrapped around the neck of the vessel. This could indicate that the stacked burials on the eastern side of the ossuary were a single burial event. Therefore, the western side of the ossuary may have been interred in one episode, and the eastern side could have been interred in another burial episode. However, if the structure beneath the ossuary is the charnel house or drying rack used for the processing of the burials that was then covered over with a layer of shell, this may indicate a single burial event rather than a multiple event.

An examination of the ossuary using Binford's third dimension shows that it was located within a four post structure under the northeast edge of Mound B. Without further excavation the purpose or function of this structure and the reason for the internment of the burials within the boundaries of the structure is unclear. This may have been a land holding of the kin group, if it is a woodland house structure, or it could

simply be the charnel house or part of the drying racks used in the processing of the burials. A house structure with associated interments was uncovered at Moundville, and these internments occurred after the site was abandoned and turned into a necropolis. These Late Mississippian burials at Moundville were interred within the earlier Mississippian house structures (Wilson 2008). "Thus, it is not unreasonable to speculate that these cemeteries served as a metaphor for a house that embodied kin-group identity while maintaining continuity with the residential origin and history of kin groups at Moundville" (Sullivan and Mainfort 2010:89). However, more work needs to be conducted at Shady Grove to determine the location of house structures and to further excavate the area under Mound B to determine if other structures exist in the area.

Following Binford's suggestions for mortuary analysis, artifacts found associated with burials, similarities of recovered artifacts between Shady Grove and sites slightly farther west (Carson, Humber, and Oliver) and within the Mississippi Delta was observed. There are also strong resemblances to what was observed in artifact style, specifically the bean pot, at sites from southeastern Arkansas to the lower part of the Mississippi Delta that shows a sharing of cultural traits and ideas. Two of the artifacts show artistic variations that were not observed at the other sites in the region which may be indicative of items made specifically for a ceremony or for an individual for the mortuary ritual.

There were 22 artifacts associated with 78 burials at Shady Grove, many of which were considered collective items. Low artifact to burial ratios was also seen at Mt. Nebo, Mangum, and Oliver. It would be expected that elite burials would have more funerary objects than non-elites as they were afforded more time and energy. The fact that some

individuals at Shady Grove were interred with several artifacts may indicate that they were persons of higher status. However, without more information on the site structure at Shady Grove it is difficult to determine whether the sociopolitical structure was Big Man, simple, or a complex chiefdom.

The high artifact concentrations (five vessels) in the southeast portion of the ossuary, where two (Bu 43-56 and Bu 43-9) of the true bundle burials were located, also exemplify the greater expenditure of time and energy afforded, based on Binford's (1971) model of the hierarchical observance of elite individuals. In addition, two of these artifacts may also be ceremonial in nature or made specifically for one of the individuals due to the unique style and their inclusion in the mortuary context, which may indicate persons of higher status. The artifacts that were determined to be collective offerings based on the disorganized placement without direct association with a skull, show that males, females, and juveniles had access to the same locally produced and trade items.

After the examination of Shady Grove and the comparative sites based on Binford's (1971) four principles for studying mortuary practices, both similarities and differences have been found between them. The demographics for the site show slightly more males than females and the presence of all age groups that shows no observable preferential treatment. The disposition of burials at Shady Grove are compact stacked burials that were either loosely bundled together with organic material or simply placed into baskets and dumped into the ossuary pit; six individuals were found loosely bundled with partial articulation. Charnel house processing was evidenced at Shady Grove, which was also observed at two other sites in the region. Only one other site (Carson Mounds) had bundle burials and a burial mode with a similarly disorganized orientation. The

outlines of other possible burial pits were evident during the 2009-2010 excavations but due to the time constraints were not excavated. The Bu-43 ossuary was located within a structure under Mound B on the western edge of the mound. However, the location of a few burials provides only the information that we have to begin to understand the mortuary practices during the Mississippian Period at the Shady Grove Site. Because no other house structures have been located at the site and the presence of a large shell midden ring that runs along the northern boundary of Mound A and under Mound B, further questions about site function have arisen. There is a relatively low artifact to burial ratio and there are items that appear to be both locally produced and trade items. Therefore, all individuals within this sample appear to have been afforded the same access to both local and trade goods. Further studies must be conducted to better understand the site structure present at Shady Grove that will also assist in a better understanding of the sociopolitical structure present during the Mississippian Period.

CHAPTER VI

CONCLUSIONS

In the original survey of the Lower Mississippi Valley, Shady Grove was described as a "prolific village site" (Phillips et al. 1941:4). However, the complexity of the social system has never been addressed. It appears that a large population was living there during the Late Woodland Period based on ceramic densities, but Phillips, Ford, and Griffin (1941:4-6) believed that habitation at the site only continued into the early Mississippian Period and then ended rather abruptly. Artifacts recovered from the two ossuaries have shown that occupation continued at least through the early Mississippian Period.

Until recently, little work with mortuary analysis has been done in the Mississippi Delta which has kept anthropologists from fully understanding Mississippian cultural practices in the Delta. The evidence collected from the mortuary data has aided in the chronology and interpretation of the society that existed at Shady Grove during the Mississippian Period and how it compares to other Mississippian sites in the region. With more mortuary data from sites in the region, such as that obtained during this study, we may start to examine how cultural practices spread through the area.

This study has shown that occupation at the Shady Grove Site did continue into the early Mississippian Period as Phillips, Ford, and Griffin believed. The presence of two ossuaries underneath Mound B and the outlines of other possible burial pits may indicate that the function of Mound B was as a burial mound. However, future studies are needed to determine if Mound B was constructed during the Mississippian Period or during the Baytown Period, as Phillips, Ford, and Griffin (1941:6) believed.

The artifacts recovered during the 2009-2010 excavations at Shady Grove have shown that similarities in mortuary style existed across the region. Trading is evident at the site specific artifacts such as the copper ornament and conch shell bead from the coast and as far north as Cahokia. Burial location and access to locally produced and trade items were afforded to all ages and sexes and when examined in conjunction with the shell ring may represent the solidarity present within the community. These variations observed at Shady Grove and the comparative sites are what make defining the sociopolitical structure so difficult. As Lorenz (1996) has discussed, these variations observed in smaller chiefdoms makes determining site function complicated.

Reconstruction of life during this prehistoric period is important in understanding social and political transformation during the Mississippian Period. The excavation and analysis of the 78 individuals from the Shady Grove Bu-43 ossuary has provided much new and interesting information for the bioarcheological record in the Mississippi Delta, especially given the time constraints under which the excavation had to take place. The presence of three to five high stacked burials within an ossuary is something that had not been observed before in this region. While the techniques employed did work, it is hoped that better techniques will be developed in the future in the event that more ossuaries of this nature are uncovered.

The information obtained from the Shady Grove site is one piece of the puzzle that will help in our understanding of the sociopolitical organization present in the Mississippi Delta. Shady Grove has assisted in proving that there is variation observed among smaller chiefdoms in both the Mississippi Delta and the Lower Mississippi Valley. Also, it has shown that smaller sites can display many of the same characteristics

in burial practices observed at much larger sites like Moundville and Winterville. As further excavations are conducted at Shady Grove, our understanding of cultural practices within this region will help in our observations about inter and intra-group relations.

APPENDIX A

BURIAL LIST OF DEMOGRAPHICS AND ASSOCIATED ARTIFACTS FOR BU-43

Burial 43-	Suture or Long Bone Age	Tooth Wear	Final Age	Sex	Bundled or commingled	Burial Goods
1	unk	unk	unk	unk	commingled	
2	subadult	unk	subadult	unk	commingled	
3	juvenile	unk	juvenile	unk	commingled	
4	young adult	unk	young adult	female	commingled	
5	older adult	unk	older adult	male	commingled	
6	older adult	unk	older adult	female	bundled	
7	young adult	unk	older adult	male	commingled	
8	older adult	unk	older adult	male	commingled	
9	young adult	unk	older adult	female	bundled	vessel 5,6,7,9
10	older adult	light	young adult	male	bundled	
11	subadult	light	subadult	unk	commingled	
12	unk	unk	unk	female	commingled	
13	juvenile	unk	juvenile	unk	commingled	
14	young adult	unk	young adult	female	commingled	
15	young adult	unk	young adult	male	commingled	
16	young adult	light	young adult	prob female	commingled	
17	young adult	unk	young adult	prob male	commingled	
18	young adult	unk	young adult	male	commingled	shell gorget
19	2 juveniles	unk	juvenile	unk	commingled	
20	older adult	unk	older adult	male	commingled	
21	older adult	unk	older adult	prob male	commingled	
22	older adult	unk	older adult	male	commingled	

23	older adult	light	young adult	female	commingled	conch shell bead
24	young adult	unk	young adult	male	commingled	
25	juvenile	unk	juvenile	unk	commingled	
26	young adult	light	young adult	male	commingled	shell gorget
27	young adult	unk	young adult	male	commingled	
29	older adult	heavy	older adult	male	commingled	
30	older adult	unk	older adult	female	commingled	
31	young adult	unk	young adult	male	commingled	
32	young adult	unk	young adult	male	commingled	
32A	juvenile	unk	juvenile	unk	commingled	
33	juvenile	unk	juvenile	unk	commingled	
34	unk	moderate	older adult	unk	commingled	
35	unk	moderate	older adult	unk	commingled	
36	young adult	unk	young adult	female	commingled	
37	unk	unk	unk	unk	commingled	
38	young adult	unk	young adult	female	commingled	
39	young adult	unk	young adult	female	commingled	
40	young adult	light	young adult	female	commingled	
41	unk	unk	unk	unk	commingled	
42	young adult	unk	young adult	male	commingled	
43	young adult	unk	young adult	female	commingled	
44	young adult	light	young adult	prob female	commingled	
45	unk	unk	unk	male	commingled	
45A	unk	unk	unk	female	commingled	
46	infant	unk	infant	unk	commingled	
47	juvenile	unk	juvenile	unk	commingled	
49	juvenile	unk	juvenile	unk	commingled	

50	young adult	unk	young adult	female	commingled	vessel 11,12
51	older adult	light	young adult	female	commingled	
52	young adult	light	young adult	prob male	commingled	
53	older adult	light	young adult	male	commingled	
54	older adult	unk	older adult	male	commingled	
55	unk	unk	unk	unk	commingled	
56	young adult	unk	young adult	male	bundled	vessel 5,6,7,9
57	young adult	unk	young adult	male	commingled	vessel 11,12
58	young adult	unk	young adult	male	commingled	vessel 11,12
59	older adult	heavy	older adult	male	commingled	
60	young adult	unk	young adult	female	commingled	
61	unk	unk	unk	unk	commingled	
62	juvenile	unk	juvenile	unk	commingled	
64	young adult	unk	young adult	male	commingled	
65	young adult	unk	young adult	female	commingled	
66	young adult	unk	young adult	prob male	commingled	
66A	juvenile	unk	juvenile	unk	commingled	
67	young adult	unk	young adult	male	commingled	
68	juvenile	unk	juvenile	unk	commingled	
69	young adult	unk	young adult	female	commingled	
71	juvenile	unk	juvenile	unk	commingled	
72	juvenile	unk	juvenile	unk	commingled	
73	young adult	light	young adult	prob male	commingled	
no #	infant	unk	infant	unk	commingled	
no #	infant	unk	infant	unk	commingled	
no #	infant	unk	infant	unk	commingled	
no#	subadult	unk	subadult	unk	commingled	
no#	subadult	unk	subadult	unk	commingled	

APPENDIX B

ARTIFACTS RECOVERED FROM THE Bu-43 OSSUARY

Vessel 1

Vessel 2

Vessel 3

Vessel 4

Vessel 5

Vessel 6

Vessel 7

Vessel 8

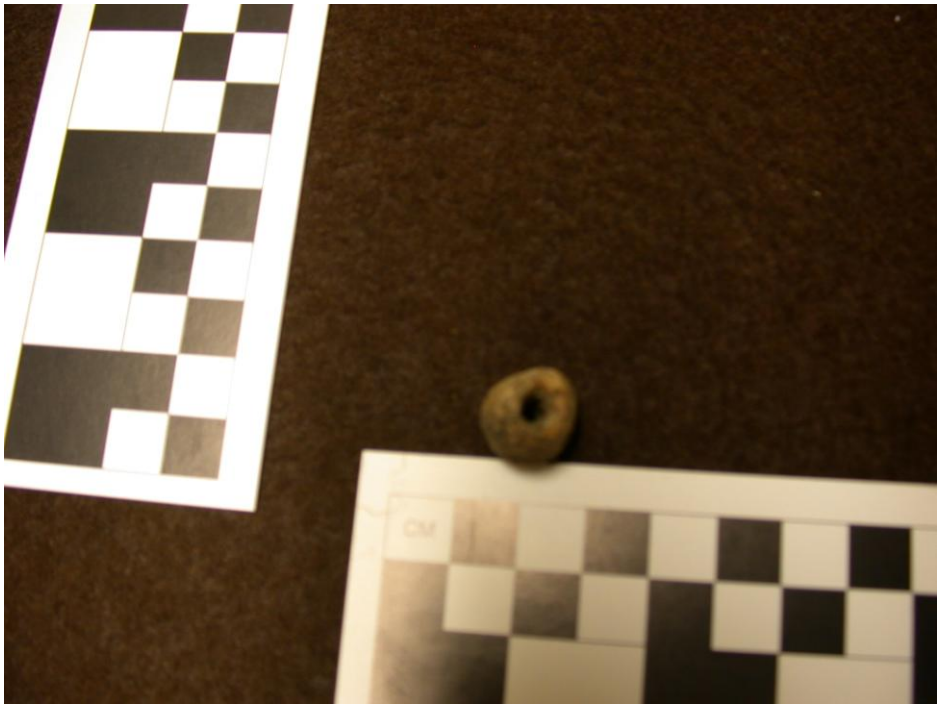
Vessel 9 (left) and vessel 11 (right)

Vessel 10

Vessel 11 on vessel 12

Copper Ornament

Bone awls



Conch shell bead

Round shell pendant

Oval shell pendant with two drilled holes

Triangular shaped shell pendant

REFERENCES

Ascádi, G. and Nemeské, J.
1970 History of Human Life Span and Mortality. Akadémiai Kiadó, Budapest, Hungary.

Bass, William M.
1995 Human Osteology: A Laboratory and Field Manual, 4th ed. Springfield: Missouri Archaeological Society

Beck, Robin A. Jr.
2003 Consolidation and Hierarchy: Chiefdom Variability in the Mississippian Southeast. *American Antiquity* 68: 641-661.

Belmont, John S.
1961 The Peabody Excavations, Coahoma Co, Mississippi, 1901-1902. Bachelor's Thesis. Department of Anthropology, Harvard University, Cambridge.

Binford, Lewis R.
1962 Archaeology as Anthropology. *American Antiquity*, 28: 217-225.

1971 Mortuary Practices: Their Study and Their Potential. In *Approaches to the Social Dimensions of MortuaryPractices*. James Brown, ed. pp 6-29 Memoirs of the Society for American Archaeology, Vol. 25.

Blitz, John H.
1993 Big Pots for Big Shots: Feasting and Storage in a Mississippian community. *American Antiquity*, 58: 80-96.

Brain, Jeffrey P. and Phillips, Phillip
1979 Lower Mississippi Survey. Lower Mississippi Survey Bulletin 4. Peabody Museum of Archaeology and Ethnology. Harvard University Press. Cambridge, Massachusetts.

Braun, David P.
1981 A Critique of Some Recent North American Mortuary Studies. *American Antiquity* 46: 398-416.

Brown, James A.
1971 The Dimensions of Status in the Burials at Spiro. In *Approaches to the Social Dimensions of MortuaryPractices*. James Brown, ed. pp 92-112. Memoirs of the Society for American Archaeology, Vol. 25.

Buikstra, Jane E.
1976 Hopewell in the Lower Illinois River Valley: A Regional Approach to the Study of Biological Variability and Mortuary Activity. Northwestern University Monograph, No. 2. Evanston, Illinois.

Buikstra, Jane E. and Mielke, J.H.
1985 Demography, Diet and Health. In *The Analysis of Prehistoric Diets*. R. I. Gilbert, Jr. and J.H. Mielke, eds. pp. 359-422. Orlando: Academic Press.

Buikstra, J.E. and Ubelaker, Douglas H.
1994 Standards for Data Collection from Human Skeletal Remains. Arkansas Archaeological Survey Research Series, No. 44. Fayetteville, Arkansas.

Canon, Aubrey
1989 The Historical Dimension in Mortuary Expressions of Status and Sentiment. *Current Anthropology* 30: 437-458.

Cardoso, H.
2008 Epiphyseal Union at the Innominate and Lower Limb in a Modern Portuguese Skeletal Sample, and Age Estimation in Adolescent and Young Adult Male and Female Skeletons. *American Journal of Physical Anthropology* 135:161-170.

Carr, Christopher
1995 Mortuary Practices: Their Social, Philosophical-Religious, Circumstantial, and Physical Determinants. *Journal of Archaeological Method and Theory* 2: 105-200.

Chapman, Robert, Kinnes, Ian, and Randsborg, Klavs
1981 The Archaeology of Death. New York: Cambridge University Press.

Cobb, Charles R.
2003 Mississippian Chiefdoms: How Complex? *Annual Review of Anthropology* 32: 63-84.

Connaway, John
1981 Archaeological Investigations in Mississippi 1969-1977. Mississippi Department of Archives and History. Jackson, Mississippi.

Cotter, John L.
1952 The Mangum Plate. *American Antiquity* 18: 65-68.

Dunham, Gary H.
2003 Collective Burial in Late Prehistoric Virginia: Excavation and Analysis of the Rapidan Mound. *American Antiquity* 68: 109-128.

Earle, Timothy K.
1987 Chiefdoms in Archaeological and Ethnohistorical Perspective. *Annual Review of Anthropology* 16: 279-308.

Elmore, Lorien Stahl
2008 Energy Expenditure and Mortuary Practices at Lyon's Bluff, 22OK520: An Evolutionary Approach. Master's thesis, Department of Sociology, Anthropology, and Social Work, Mississippi State University, Starkville.

Emerson, Thomas E, Hughes, Randall E., Hynes, Mary R., and Wisseman, Sarah U.
2003 The Sourcing and Interpretation of Cahokia-Style Figurines in the Trans-Mississippi South and Southeast. *American Antiquity* 68: 287-313.

Fenton, James Patrick
1991 The Social Uses of Dead People: Problems and Solutions in the Analysis of Post Mortem Body Processing in the Archaeological Record. Ph.D. dissertation, School of Arts and Sciences, Columbia University, New York.

Flannery, Kent V.
1972 The Cultural Evolution of Civilizations. *Annual Review of Ecology and Systematics* 3: 399-426

Fuller, Richard S., Silvia, Diane E., and Stowe, Noel R.
1984 The Forks Project: An Investigation of the Late Prehistoric-Early Historic Transition in the Alabama-Tombigbee Confluence Basin, Phase I: Preliminary Survey. Archaeological Research Laboratory, University of South Alabama, Mobile. Submitted to Alabama Historical Commission. Montgomery, Alabama.

Giardino, Marco J.
1982 Temporal Frameworks: Archaeological Components and Burial Styles: The Human Osteology of the Mt. Nebo Site in North Louisiana. *Louisiana Archaeology*: 99-126.

Goldstein, Lynne Gail
1976 Spatial Structure and Social Organization: Regional Manifestations of Mississippian Society. Ph.D. dissertation, Department of Anthropology, Northwestern University, Evanston.

1980 Mississippian Mortuary Practices: A Case Study of Two Cemeteries in the Lower Illinois Valley. Northwestern University Monograph No. 2. Evanston, Illinois.

Goodenough, W.H.
1965 Rethinking 'Status' and 'Role': Toward a General Model of the Cultural Organization of Social Relationships. In *The Relevance of Models for Social Anthropology*. M. Banton, ed. pp 1-24. London: Tavistock.Press.

Green, William and Rodell, Roland L.
1994 The Mississippian Presence and Cahokia Interaction at Trempealeau, Wisconsin. *American Antiquity* 59: 334-359.

Gruber, Jacob W.
1971 Patterning in Death in a Late Prehistoric Village in Pennsylvania. *American Antiquity* 36: 64-76.

Hensley, Tiffany and Penton, Misty
n.d. An Analysis of the Mortuary Program at Mangum Mound (22CB584), Claiborne Co, Mississippi. Submitted to *Mississippi Archaeology.*

Hershkovitz, Israel, Latimer, Bruce, Dutour, Oliver, Jellema, Lyman, Wish-Baratz, Susanne, Rothschild, Christine, and Rothschild, Bruce
1997 Why Do We Fail in Aging the Skull From the Sagittal Suture? *American Journal of Physical Anthropology* 103: 393-399.

Hogue, S. Homes
2008 Bioarchaeology in the Mississippi Delta. In *Time's River*. Janet Rafferty and Evan Peacock, eds. pp. 182-200. Tuscaloosa: University of Alabama Press.

House, John H.
1982 Powell Canal: Baytown Period Occupation on Bayou Macon in Southeast Arkansas. Arkansas Archaeological Research Series No. 19. Fayetteville, Arkansas.

Jackson, H. Edwin
1992 The Ables Creek Site: A Protohistoric Cemetery in Southeast Arkansas. Arkansas Archaeological Survey Research Series No. 42. Fayetteville, Arkansas.

James, Jenna, Wrobel, Gabriel, Johnson, Jay, and Connaway, John
2010 The Taphonomy of Secondary Burials at Carson Mounds, Coahoma Co, Mississippi. Paper presented at the meetings of the American Association of Physical Anthropologists, Albuquerque, New Mexico.

James, Jenna Leigh Anne
2010 Modeling Mortuary Behavior Based on Secondary Burial Data from Carson Mound Group, Coahoma county, Mississippi. Master's thesis. Department of Sociology and Anthropology, University of Mississippi, Oxford.

Khazanov, A.M., O'Brien, Michael J., and Paulsen, Allison C.
1978 More on Middle Mississippian Social Organization. *Current Anthropology* 19: 175-177.

Kidder, T.R.
1998 Mississippian Period Mound Groups and Communities in the Lower Mississippi Valley. In *Mississippian Towns and Sacred Spaces: Searching for an Architectural Grammar*. R.B. Lewis and C. Stout, eds. pp. 123-150. Tuscaloosa: University of Alabama Press.

Kipp, Rita Smith and Schortman, Edward M.
1989 The Political Impact of Trade in Chiefdoms. *American Anthropologist* 91: 370-385.

Knight, Vernon James Jr.
1986 The Institutional Organization of Mississippian Religion. *American Antiquity* 51: 675-687.

1990 Social Organization and the Evolution of Hierarchy in Southeastern Chiefdoms. *Journal of Anthropological Research* 46:1-23.

Knight, Vernon James Jr. and Steponaitis, Vincas P.
1998 Architectural Patterning at the Moundville Site. In *Archaeology of the Moundville Chiefdom*. Vernon James Knight Jr. and Vincas Steponaitis, eds. pp. 47-61 Washington and London: Smithsonian Institution Press.

Larson, Lewis H. Jr.
1958 Southern Cult Manifestations on the Georgia Coast. *American Antiquity* 23: 426-430.

Lorenz, K.G.
1996 Small-Scale Mississippian Community Organization in the Big Black River Valley of Mississippi. *Southeastern Archaeology* 15:145-171.

Lovejoy, C.
1985 Dental Wear in the Libben Population: Its Functional Pattern and Role in the Determination of Adult Skeletal Age at Death. *American Journal of Physical Anthropology* 68:47-56.

Lubson, Kyle D.
2010 Femur Head Diameter: Sex Estimation and Temporal Trends in Six Prehistoric Native American Skeletal Samples. Paper presented at the meetings of the Paleopathology Association, Minneapolis, Minnesota.

Mainfort, Robert C. Jr.
1985 Wealth, Space, and Status in a Historic Indian Cemetery. *American Antiquity* 50: 555-579.

McGuire, Randall H.
1983 Breaking Down Cultural Complexity: Inequality and Heterogeneity. *Advances in Archaeological Method and Theory* 6: 91-142.

McKern, T.W. and Stewart, T.D.
1957 Skeletal Age Changes in Young American Males. Quartermaster Research and Development Command Technical Report. Natick, Massachusetts:

Milner, George R.
1982 Measuring Prehistoric Levels of Health: A Study of Mississippian Period Skeletal Remains from the American Bottoms, Illinois. PhD dissertation, Department of Anthropology, Northwestern University, Evanston.

1984 Social and Temporal Implications of Variation Among American Bottom Mississippian Cemeteries. *American Antiquity* 49: 468-488.

Muller, Jon
1984 Mississippian Specialization and Salt. *American Antiquity* 49: 489-507.

1997 Mississippian Political Economy. New York and London: Plenum Press.

Neitzel, Robert S.
1965 Archaeology of the Fatherland Site: The Grand Village of the Natchez. Anthropological Papers of the American Museum of Natural History, Vol 51. New York, New York.

Neuman, Robert W.
1984 An Introduction to Louisiana Archaeology. Baton Rouge: Louisiana State University Press.

O'Shea, John M.
1984 Mortuary Variability: An Archaeological Investigation. Orlando: Academic Press.

Paynter, Robert
1989 The Archaeology of Equality and Inequality. *Annual Review of Anthropology* 18: 369-399.

Pearson, Mike Parker
2001 The Archaeology of Death and Burial. College Station: Texas A&M University Press.

Peebles, Christopher S.
1971 Moundville and Surrounding Sites: Some Structural Considerations of Mortuary Practices II. In *Approaches to the Social Dimensions of MortuaryPractices*. James Brown, ed. pp 68-91. Memoirs of the Society for American Archaeology, Vol. 25.

1979 Excavations at Moundville, 1905-1951. Ann Arbor: University of Michigan Press.

1987a The Rise and Fall of the Mississippian in Western Alabama: The Moundville and Summerville Phases, A.D. 1000 to 1600. *Mississippi Archaeology* 22: 1-31.

1987b Moundville from 1000 to 1500 A.D. as Seen from 1840 to 1985 A.D. In *Chiefdoms in the Americas*, R.D. Drennan and C.A. Uribe, eds. pp. 21-41. Lanham: University Press of America.

Peebles, Christopher S. and Kus, Susan M.
1977 Some Archaeological Correlates of Ranked Societies. *American Antiquity* 42: 421-448.

Penton, Misty
n.d. Bioarchaeology and Subsistence in the Lower Mississippi Valley: The Mangum Site (22CB584), Claiborne Co, Mississippi. Submitted to Mississippi Archaeology.

Phillips, Phillip, Ford, James A., and Griffin, James B.
1941 Shady Grove Site Survey Field Notes. Peabody Museum Lower Mississippi Survey. Cambridge, Massachusetts. http://www.rla.unc/lms/Sites/Tier_16-20/16-p_/16-P_04.jpg . Accessed October 20, 2009.

1970 Archaeological Survey in the Lower Yazoo Basin, Mississippi 1949-1955. Peabody Museum of Archaeology and Ethnology, Vol 60. Cambridge, Massachusetts.

Rothchild, Nancy A.
1979 Mortuary Behavior and Social Organization at Indian Knoll and Dickson Mounds. *American Antiquity* 44: 658-675.

Rose, H.J.
1922 Celestial and Terrestrial Orientation of the Dead. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 52: 127-140.

Saxe, Arthur A.
1970 Social Dimensions of Mortuary Practices. Ph.D. dissertation, Department of Anthropology, University of Michigan, Ann Arbor.

Schaefer, M.
2008 A Summary of Epiphyseal Union Timings in Bosnian Males. *International Journal of Osteoarchaeology* 18:536-545.

Schultz, Floyd and Spaulding, Albert C.
1948 A Hopewellian Burial Site in the Lower Republican Valley, Kansas. *American Antiquity* 13: 306-313.

Schurr, Mark R.
1992 Isotopic and Mortuary Variability in a Middle Mississippian Population. *American Antiquity* 57: 300-320.

Scott, Stacy A., Esken, Fee E., and Chandler, Cassie
2009 Bioarchaeological Examination from the Shady Grove Site. Manuscript on file, Department of Anthropology and Sociology, University of Southern Mississippi, Hattiesburg.

Steadman, Dawnie W.
1998 The Population Shuffle in the Central Illinois Valley: A Diachronic Model of Mississippian Biocultural Interactions. *World Archaeology* 30: 306-326.

Steponaitis, Vincas P.
1986 Prehistoric Archaeology in the Southeastern United States, 1970-1985. *Annual Review of Anthropology* 15: 363-404.

1991 Contrasting Patterns of Mississippian Development. In *Chiefdoms: Power, Economy, and Ideology*, Timothy K. Earle, ed. pp. 193-228. Cambridge: Cambridge University Press.

Sullivan, Lynne P. and Mainfort, Robert C. Jr.
2010 Mississippian Mortuary Practices: Beyond Hierarchy and the Representationist Perspective. Gainesville: University of Florida Press.

Swanton, John R.
1931 Source Material for the Social and Ceremonial Life of the Choctaw Indians. Smithsonian Institution Bureau of American Ethnology Bulletin 103. Washington, D. C.

Tainter, Joesph A.
1978 Mortuary Practices and the Study of Prehistoric Social Systems. *Advances in Archaeological Method and Theory* 1: 105-141.

Tesar, Louis D.
1976 The Humber-McWilliams, a Pre-Columbian Burial Ground, Coahoma Co, Mississippi: Exploration and Analysis, 1975-1976. Marshall: Port Caddo Press.

Thompson, Andrew R.
2008 Reconstructing Life in the Protohistoric Southeast: A Bioarchaeological Analysis of the Oliver site (22CO 503), Coahoma County, Mississippi. Master's thesis, Department of Anthropology and Sociology, University of Southern Mississippi, Hattiesburg.

Tiné, Angela L.
1996 An Analysis of Biological Stress at the Ables Creek Cemetery. Master's thesis, Department of Anthropology, University of Arkansas, Fayetteville.

Trinkaus, Kathryn M.
1984 Mortuary Ritual and Mortuary Remains. *Current Anthropology* 25: 674-679.

Ubelaker, D.H.
1989 Human Skeletal Remains: Excavation, Analysis, Interpretation. Washington, D.C.: Taraxacum.

Ucko, Peter J.
1969 Ethnography and Archaeological Interpretation of Funerary Remains. *World Archaeology* 1: 262-280.

Walker, P.L.
1995 Problems of Preservation and Sexism in Sexing: Some Lessons from Historical Collections for Palaeodemographer. In *Grave Reflections: Portraying the Past through Cemetery Studies*. S.R. Saunders and A. Herring, eds. pp 31-47. Toronto: Canadian Scholars' Press.

Waring, A.J. Jr. and Holder, Preston
1945 A Prehistoric Ceremonial Complex in the Southeastern United States. *American Anthropologist* 47: 1-34.

Watson, Paul B.
1994 The Archaeology of Rank. New York: Cambridge University Press.

Webb, Malcolm C.
1974 Exchange Networks: Prehistory. *Annual Review of Anthropology* 3: 357-383.

Weinstein, Richard A., Fuller, Richard S., Scott, Susan L., Scarry, Margaret C., Duay, Sylvia T.
1995 The Rock Levee Site: Late Marksville through Late Mississippian Period Settlement, Bolivar County, Mississippi. The Beulah Levee Project: Archaeology and History, Vol. 3. Baton Rouge: Coastal Environments, Inc.

Weiss, Kenneth M. and Wobst, H. Martin
1973 Demographic Models for Anthropology. In *Memoirs of the Society for American Archaeology*, Vol. 27, Demographic Models for Anthropology. James Brown, ed. pp 1-186.

Welch, Paul D.
1991 Moundville's Economy. Tuscaloosa: University of Alabama Press.

Williams, Stephen and Brain, Jeffrey P.
1983 Excavations at the Lake George Site, Yazoo County, Mississippi, 1958-1960. Papers of the Peabody Museum of Archaeology and Ethnology, Vol. 74. Cambridge: Harvard University Press.

Wilson, Gregory D.
2005 Between Plaza and Palisade: Household and Community Organization at Early Moundville. PhD. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.